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APRIL 10, 1920 VOL. VII. NO. 1

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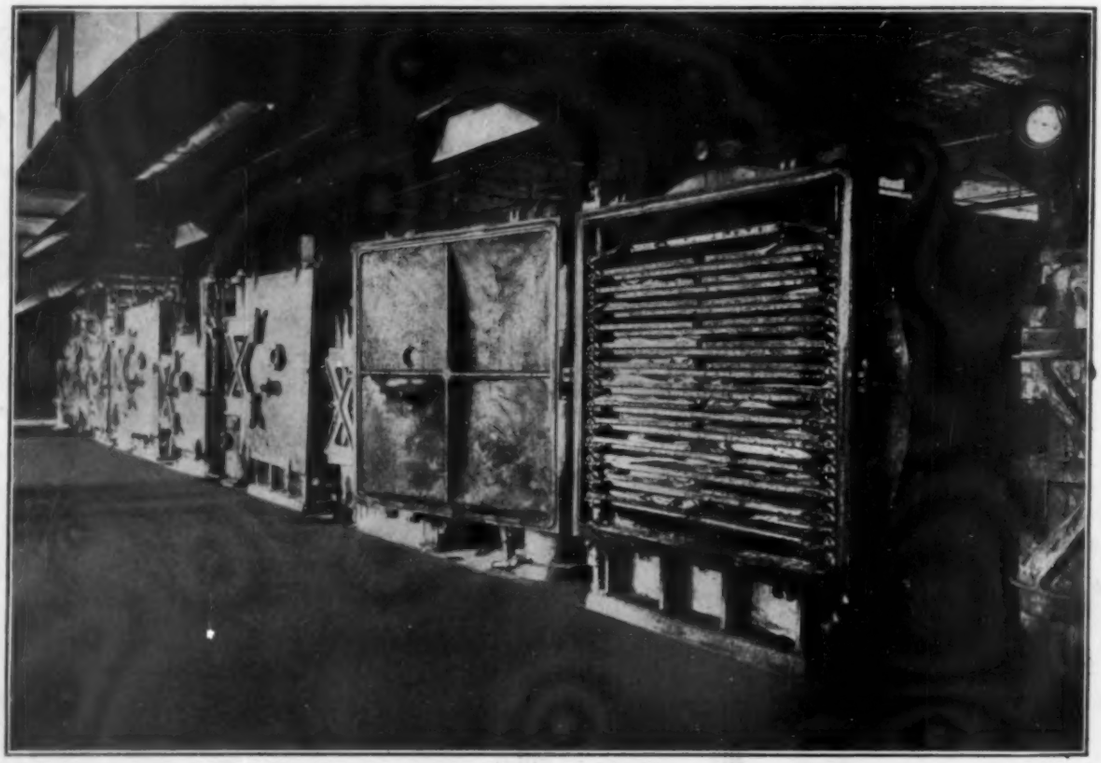

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THE RUBBER AGE AND TIRE NEWS

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Vol. VII April 10, 1920 No. 1

The Manufacture of Rubber Clothing

By N. Lincoln Greene

Manager Clothing Division, United States Rubber Company

The following article is a brief description of the method of producing rubberized coats.

The term, rubberized coats, covers two distinct types of garments:

First. The calendered or rubber surface coat, commonly spoken of as a rubber coat, which is one made from a fabric with a rubber proofing as the surface material and adapted for the use of officers, teamsters, postmen, firemen and for those in a similar line of work, while some of the better grades are serviceable for street wear and vacation purposes.

Second. Mackintosh or slip-on coat, made either double or single texture: a double texture coat representing one constructed from two thicknesses of cloth, that is, a surface fabric and a lining with a rubber coating in between; the single texture coat being made with the outer surface of cloth and the inner surface or lining of rubber.

The process of manufacture, whether a calendered rubber coat or a slip-on, is along practically the same lines, with the exception of the compound or proofing, which will be explained in detail later. The various processes are, as follows:

(1) Preparing the crude rubber; (2) mixing the compound; (3) coating the cloth; (4) cutting the coats; (5) making; (6) vulcanizing; (7) finishing; (8) examining; (9) shipping.

In preparing the rubber, the greatest precaution must be used to remove all foreign material which may work itself into the compound. The rubber itself is thoroughly washed in a mill consisting of two horizontal cast iron rolls revolving toward each other. One or both of these rolls may have corrugated surfaces, the object being to pull apart the fibers of the rubber, and with the aid of a stream of water, which is kept running on the rubber, foreign substances are washed out. After washing, the moisture is dried from the rubber by hanging either in a dry chamber, in which the temperature is maintained at a certain point or through forced drying in a vacuum. When thoroughly dried, the rubber is then broken down or milled between hot rolls until it becomes soft and plastic enough to absorb the powder and other materials which must be incorporated into it to render it fit for use. Various chemicals are used to give color to the rubber, in some instances to give toughness to the compound, also ageing qualities; still others are vulcanizing agents.

PICKING ROOM

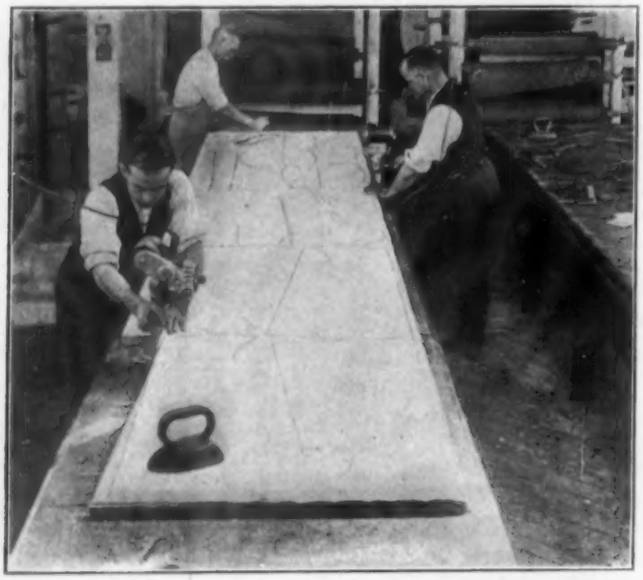
VIEW OF THE CALENDERS

The process or operation of working the rubber and chemicals together is termed mixing. This mixing is effected by working the rubber and other ingredients between two smooth surface iron rolls revolving toward each other; the back is generally revolving slightly faster than the front one, thus giving a friction motion which tends to aid in the mixing by forcing the ingredients into the rubber. These rolls are hollow and are kept hot by means of steam and are cooled with water.

Before passing to the coating of cloth it is necessary that the fabric itself is first picked clear of all knots and burrs and examined for other imperfections, as such imperfections would affect the satisfactory proofing of the material. Care is given in thoroughly drying the fabric to remove any excess moisture, which would cause confusion in weights and trouble in coating.

There are two distinct methods of coating the fabric.

First. In the calendered or rubber surface coat, the coating or spreading the compound on the material is through the medium of a calender, which consists of three or four finely ground steel rolls heated with steam. These rolls, situated one on top of the other, revolve at an even motion in different directions in such a way that the compound, placed between the middle and top rolls in what is termed a bank, is carried around the center roll in a thin sheeting and pressed on the cloth as the cloth passes between the middle and bottom roll. The operator must be a skilled employe, giving special attention to



CUTTING WITH ELECTRIC MACHINE

the proper regulation of heat in the rolls to avoid the rubber picking up or blistering, and also to avoid the appearance of streaks in the finished product. In addition he must be able to so adjust the distance between the rolls that the proper amount of gum will be pressed or coated on the cloth. The rubber surface fabric after coating is, as it is being wound in rolls, given a finish coat of a drying powder to prevent the successive layers of fabric from sticking to each other. The cloth is now ready for the cutting room. Before detailing this process, we will explain the coating of the double and single texture fabrics.

Second. The method of preparing the compound or proofing is similar to that employed in rubber clothing, although the ingredients differ to meet the requirements of the particular coat to be made. After the compound and rubber are thoroughly mixed, the stock is refined or sheeted out and placed in churns. These churns are of various types, but the one most commonly used in this country is a large vertical drum, cylindrical in shape, with open top, wherein the compound and solvent are placed. A gate valve at the bottom is made adjustable so that it can be opened and the stock removed when sufficiently churned. In a vertical position in the center of the drum is a piece of shafting, to which they are attached; they act as continual agitators upon the compound, and with the aid of a solvent, such as naphtha, they stir up the mass until it assumes a consistency of dough, and is reasonably free and clear of all lumps. The coating of double and single texture fabrics is through the medium of a spreader or spreading machine, which consists of an iron frame supporting a steam table for expelling the solvent, brackets and take-off for cloth in the roll, rollers for supporting and guiding the cloth, an adjustable horizontal knife and a rubber covered roll.

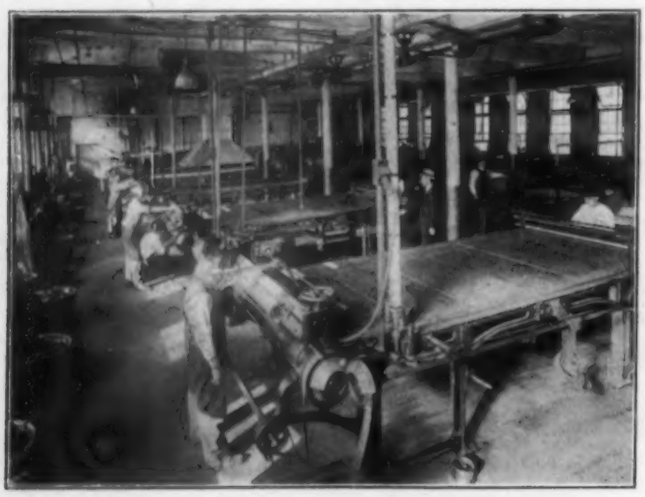
Coating the Fabric

The surface cloth and the lining fabric are coated first independently of each other. In either case the cloth passes over the rubber covered roll and under the knife, which is so adjusted that it covers the entire width of the material, the knife itself resting on the roll. The solution or compound is fed against the knife, and as the cloth passes under the knife, the proofing is scraped on the fabric, each of which is put on with the cloth going in the reverse direction. This method adds strength to the coating.

After the surface fabric and its corresponding lining have been properly coated they are doubled together by a doubling calender which consists of two horizontal rolls, one above the other. The top roll is adjustable so that it can be raised or lowered by hand wheels at the top. The two pieces of fabric, namely, the surface material and lining, passing between these rolls, are compressed into one piece of material having the rubber coating between the two layers of cloth.

Single Texture Material

In the single texture material the same spreader process is used, with the exception that the cloth is not doubled to a lining fabric, the rubber itself serving for the lining. In the case of single texture fabrics, the proofing may be either a plain or solid color compound, or the rubber surface may be subsequently striped with different colored rubber solutions to give the effect of a lining of cloth, or different designs may be



VIEW OF THE SPREADERS

CUTTING DEPARTMENT

COAT MAKING

STITCHERS AT WORK

printed on the rubber surface. The materials are then ready for the cutting room.

In cutting either a calendered or rubber surface coat or a double or single texture slip-on, the operation may be done by hand with a knife, or by an electric cutting machine. The fabrics are laid up in thicknesses varying from forty to seventy-five layers of cloth, the quantity of layers depending on the weight and texture of material to be cut. The pattern is marked by means of a perforated sheet of paper on the top layer of fabric. This perforated sheet is spread out by the cutter, who dusts over it with a chalk bag, the chalk sifting through the perforations to the cloth beneath, leaving the outline of the parts to be cut and the lines that the knife is to follow. Generally speaking, the rubber coats are cut by hand, while the double and single texture fabrics are cut with an electric machine.

Operations in Coat-Making

After cutting the work is put up in bundles, each bundle consisting of every piece necessary for a given garment, and the work is then passed to the makers. Generally, the first operation is putting together the sleeves, collars, backs and fronts, and then the several parts are joined together into a completed coat. In the calendered or rubber surface coat the seams are all cemented, although, in some instances, stitching may be employed at certain points to add strength.

While a few mechanical aids have been introduced from time to time, the rubber coats of today are made practically along the same lines as they were thirty years ago.

In the double and single texture slip-on coat, the seams and various parts are stitched together by either single or double needle machines, and all seams covered with a strip of cloth known as strapping, this strapping being applied by means of a coating of special cement. The coats are then ready to be vulcanized.

Vulcanizing the Garments

The very important operation of vulcanizing is performed by subjecting the garments to a heat of varying temperature for a duration of several hours in a huge oven. By means of this temperature a chemical union is effected between the rubber and the sulphur contained in the compound, and which union is known as vulcanization. Without this process the garment would be unable to withstand the extremes of temperature, and would, therefore, be valueless.

The process of finishing includes the putting on of the various types of fasteners, whether buttons, buckles, ball and sockets, or otherwise. In rubber surface coats metallic fasteners of different characters are ordinarily used and are riveted to the coat by automatic machines. In double and single texture coats, buttons and buttonholes are employed. Rivets are also used, to give added strength to certain parts of the garment.

After finishing the garments are thoroughly examined for defects in workmanship or material, and when this operation is completed they are folded, properly tagged and ready to be

PACKING ROOM

applied on the various orders. The coats are then shipped out, some in bulk, others in individual cartons, and packed in cases made to hold a definite quantity.

Analysis of Emarex

By heating Emarex a slight odor of acrolein is perceptible. It is slightly sticky, black brown mass which cannot be used on the rolls by itself without talc. Specific gravity, 1.00417, carbon-79140, hydrogen-16.550, nitrogen-2.10 per cent, sulphur-0.569 per cent. On ashing the gases given off are chiefly acetylene and there is formed a solid glazed cake. Ash is 2.572 per cent, which consisted of silicic acid 89.52 per cent and even peroxide. Emarex softens at about 155° C and melts on 350° C. It is soluble in acetone, ethyl ether, oil of turpentine, carbon disulfide, toluol, xylol, and when warmed, soluble in nitrobenzol, pyridin, CS^2 and aniline.

Fuming nitric acid attacks it with generation of considerable heat and dissolves it.

A. Dubosc, Le Caoutchouc et La G. P. 1919, pg. 9965.

Riddles That Arise When Debts are Paid

By Chesla C. Sherlock

Suppose that you sell an order of goods to a customer whose line of credit has been ample in the past, and he asks to have ninety days on it. You agree and let him have the goods on this basis. At the end of the ninety days, instead of paying you, he comes to you and wants to give you his note for the amount, said note being payable in ninety days.

These questions at once arise: Does the note amount to the payment or satisfaction of the original debt? If the credit standing of the customer rapidly goes from bad to worse and he comes to the very brink of insolvency, can you bring suit upon the original obligation without regard to the note which he has given you, or must you wait until the note itself falls due? Can you, in the absence of any other agreement, recover back the goods, if they are still in existence, in spite of the note?

Mere Giving of a Note Is Not Payment

It is a well settled rule of law that the mere giving of a promissory note does not operate as payment or satisfaction of the original obligation, unless there has been an express agreement to that effect at the time. If the creditor accepts the tendered note under a specific agreement that it shall be in payment of the account, then he will lose any rights that he had to proceed against the debtor under the original obligation, but in the ordinary case he merely takes the note as a conditional agreement or collateral obligation, and not in payment of the debt.

A mere promise is not deemed to have been payment, and that is all that a promissory note is. If the courts looked at the matter in any other light, one can readily see the tangled position they would soon involve the business interests of the country.

It is held, however, that the acceptance of a note in lieu of payment defeats the right of the creditor to proceed against the debtor until the note falls due, and any advantage which the creditor had, so long as the account remained in open account, to proceed freely is sacrificed.

Goods May Be Attached

If when the note falls due it remains unpaid, then the creditor is not limited to bring an action against the debtor for the payment of the note, but he may elect to proceed either upon it or against the original obligation. In instances where the goods sold was not perishable, this is a distinct advantage, for it permits him to proceed against the goods and recover them, or sell them under attachment for the amount of the purchase price still due.

The note must be produced, however, before the creditor can bring an action upon the original obligation, or he must offer some satisfactory reason for his failure to produce it, or show that if it falls into the hands of a third person, that such person could not collect it. This is for the protection of the defendant in the case.

Says one authority: "The reason for the rule is, not that the debt has been paid, but that a suit might afterward be brought by the indorsee, and so the party might be compelled to pay the debt a second time. The production of the note then is generally required for the security of the defendant, and not from any rule of evidence which would prevent the introduction of evidence of indebtedness without the production of the note."

It is very common to tender checks in payment of debts, yet I suppose that a large number of business men would be surprised to learn that except in a very few jurisdictions, the general rule is that the giving of a bank check in payment or discharge of the debt, in the absence of specific agreement, is not considered as payment.

The general presumption is that the check is accepted on condition that it be paid, and further that the debt is not discharged until the debt is in fact paid, or the check has been accepted at the identical bank where made payable.

The other jurisdictions mentioned hold that the check is considered as prima facie evidence of payment, but that this presumption is not conclusive and may be overcome by the introduction of proper evidence.

One authority says: "There is no presumption that a creditor takes a check in absolute payment arising from the mere fact that he accepts it from the debtor; and the giving of a receipt acknowledging payment of the debt at the time the check is delivered does not evidence an agreement to accept the check as absolute payment. Likewise an agreement that a check shall be in satisfaction of a note is not implied from the surrender and cancellation of the note. The surrender under such circumstances is conditioned on the payment of the note."

The creditor can lose no rights that he had prior to the payment by check or draft, even by the surrender of the note or by the giving of a receipt for the same, unless he has specifically agreed at the time to accept the check or draft as *payment* of the obligation.

But the law holds the creditor to the exercise of due diligence and care in the presentment and collection of the check or draft. If he be guilty of carelessness and the debtor becomes insolvent or the bank fails in the meantime, then the creditor must bear the loss.

Rule for Presenting Checks

The rule is that the check or draft must be presented to the bank during the business hours not later than the day following its receipt by the creditor, in order to be presented within a "reasonable time," especially where the debtor and creditor live in the same town.

Payment, it must be remembered, is not made until the check has been accepted by the bank upon which it is drawn, your bank merely acting as your agent in the collection of the check, and not as the agent of the bank upon which the order is drawn. And presentment to your bank, in a finely drawn case, probably would not be considered as presentment to the bank upon which the order is drawn, where the bank is situated in your city or town.

Foreign Good-Will Necessary

Organized effort for the creation of good-will towards America and American products in all foreign markets, as a continuation of the educational work conducted by the United States Government during the war, is urged in the current issue of "Association News," published by the American Manufacturers Export Association.

In an article on "Publicity in International Trade," Edward L. Bernays, who, during the war, was in charge of the educational work of the Government in American war aims and purposes in South America, Europe and the Near East, emphasizes the importance of creating good-will for Americans in foreign fields.

Reports from abroad, pointing to an organized effort to discredit America and her products in world markets, have led the American Manufacturers Export Association to a serious consideration of methods which will counteract such unfavorable propaganda. Among the methods found useful and whose re-adoption is now urged, is the association of American business men for the purpose of putting forward the American point of view, with all their merchandise and correspondence through their various media of distribution here and abroad.

Physical Testing of Vulcanized Rubber Goods

Samples shall be taken directly from the finished material. These samples should be sealed, and marked with maker's name, date of sampling, kind of material, and sufficient other data to insure easy and complete identification. The sample should be of such size as to permit of part being taken for test and the remainder stored for future reference, should the occasion for such arise. Every precaution must be taken to prevent contamination of the sample by any foreign material, and it must always be stored in a cool place. The object of these precautions is to insure that the sample shall be received in exactly the same condition as it was when taken from the original lot.

In general, the following shall represent the amount of sample required for test: (a) Tires, tubes, etc., of all kinds. One to be selected at random from each lot of 500 or less. (b) Hose. Three lengths from each lot of 5,000 ft. or less. A three foot section to be cut from each length selected, for bursting tests; other tests to be made on the remainder of the same sample.

(c) Belting. One sample twelve inches long from each roll of belting under six inches in width and six inches long from belting over six inches in width.

(d) Packing. One sample ten inches long cut across the full width of the sheet from every lot of 250 pounds or less.

(e) Moulded and lathe cut goods. One piece selected at random from every 200 pieces or less.

Preparation of Test Pieces

For tensile, elongation and set, strips shall be cut 175 m.m. long by 25 m.m. wide by approximately 2 m.m. thick. In every possible case these strips should be cut from the sample. In cases where the sample consists of a large block as, for instance, a section of a solid tire, the strips may be obtained by using heavy meat slicing machine. When the material is made up with layers of fabric, as in the case of rubber hose, the first step in preparing specimens for the tension test is to separate the rubber from the fabric. Unless the frictioning is very poor, this will necessitate the use of a solvent. If there is more than one layer of fabric, the easiest way is to remove the first layer along with the rubber. The rubber is then separated from the adjoining layer of fabric, using C.P. benzol blown from a wash bottle. Narrow strips are more easily handled than larger pieces, and there is less danger of injuring the rubber. Great pains should be taken during this operation, because any flaw or local imperfection will seriously vitiate the results. The rubber should be allowed to rest for four hours, in order that it may recover from the stretching it has received and that the benzol may thoroughly evaporate.

Wherever possible test strips should be cut in the transverse direction. In case tests are desired in the longitudinal direction they should also include the transverse. Directions should be recorded with the results of the tests.

In case the articles to be tested will not permit of pieces as above taken, then small sample pieces shall accompany each lot. These may be cured in the form of sheets approximately 2 mm. thick and of such shape as to give the desired length and number of strips, provided further that they shall be guaranteed by the manufacturer to truly represent the average composition and cure of the article delivered. From the piece described above test pieces shall be cut. The piece should be cut against a backing of fine cardboard, hard rubber or leather. The backing or cloth impression shall be removed from the test piece by buffing. Where test pieces are cut from strips of uneven thickness they shall be buffed to a uniform thickness for about 8 cm. over the middle portion of the strips, after which the test pieces are cut with a die.

For stocks having high elongation such as pure gum, a shorter die giving only 25 m.m. constricted portion should be used.

Buffing: It is recommended that for buffing test pieces a wheel operated with a ⅛ hp. motor be used. The rubber to be buffed is clamped to a carriage which is moved back and forth under a 5 in. x 1 in. emery wheel (No. 60), running at about 3000 r.p.m. The central portion of the carriage, just under the rubber, is slightly raised, by which means it has been found that the operation is more easily performed and with less danger of injury to the rubber.

Measuring width and thickness: A micrometer of the rack and pinion and dial micrometer type shall be used, using a known weight (225 gms.), namely, just enough to positively actuate the rack and pinion and bring the disk positively on the face of the test piece without compressing the rubber. The shoe and base which presses against the rubber shall be 1 cm. in diameter.

In case of asbestos packing, which is very stiff, it is necessary to use a greater weight to obtain the correct thickness, 3 Kg. on the foot 1 cm. diameter should be used.

Before any tests are made the width and thickness shall be determined by taking several readings on the constricted portion of the specimen. The cross sectional area shall then be determined on the basis of the readings which show the smallest cross section.

Conditions for making tests: All tests of the rubber parts shall be made in a room the temperature of which is between 15° and 35° C. The tests shall not be made until the test pieces have stood long enough to attain room temperature (not less than four hours). In case it should be impossible to perform the tests in room temperature within the limit of 15° and 35° C., a box or conditioning chamber which can be kept uniformly at 24° C. 3° C., in which the pieces should be placed before testing for a period of four hours and the test performed immediately after removal from the chamber.

Aging after curing before testing: The slabs from which the strips are cut shall have been cured at least twenty-four hours before the test is made.

Data on reclaimed rubber: The report of tests on vulcanized reclaimed rubber shall be accompanied by a statement in regard to the cure of the slabs from which the test pieces were cut; this statement shall include time and temperature of the curing heat and the amount of sulphur used.

Physical Tests

Tensile: Tensile may be defined as the force required to break a piece of unit cross section area. It should be expressed in kilograms per square centimeter.

Elongation: This term is used to express the increase in the length of the test piece measured between two marks placed on that portion of the test piece which is of uniform cross section. It should be expressed in per cent.

Set: This term is used to express the increase in the length of the test piece measured between two marks placed on that portion of the test piece which is of uniform cross section, after it has been stretched to sixty per cent of its breaking elongation for three successive times, holding it under this elongation for ten minutes each time and permitting five-minute intervals of rest between each interval of stretch, and finally allowing it to rest ten minutes before the final measurement is taken. It is measured in per cent, based on the original length.

Gage marks: The gage marker shall be in the form of a stamp having thin steel blades which are strictly parallel and 50 mm. apart; another marker having blades 25 mm. apart shall be used for high-grade stocks such as pure gum. The blades shall be kept clean and free from accumulation of ink,

in order that the lines marked on the test pieces shall be very fine.

Number of tests: At least four strips shall be tested in every case and the average of these tests taken.

Report of results: Since the physical properties of rubber vary noticeably in any given product, it may occasionally happen that tests are made upon a test piece which will be of poor quality. The material, as a whole, meets the requirements of the standard, but the particular piece taken falls somewhat below it. To reject or accept a lot of, say, hose, belting, packing, etc., because of failure of just one test piece to meet the specifications would, therefore, be unfair. For this reason acceptance or rejection of an item offered for delivery shall be based on the average of at least four determinations for each quantity. In arriving at these averages no weight shall be given to tests which are obviously in error and do not represent true average conditions; e.g., cases in which the tensile strength is low on account of a small flaw in the article. If the tensile strength of a piece falls more than ten per cent below the specified amount it shall not be counted in calculating the average strength, providing that in no case shall more than twenty-five per cent of the pieces tested be eliminated on this account. In other words, the object of test is to determine the quality of the article as a whole.

Adjusting test piece in grips: The test piece shall be adjusted in the grips, care being taken to insure a uniform distribution of stress over its cross section.

Testing Machine

The testing machine shall be power-driven and shall meet the following requirements:

(a) It shall indicate and record correctly the applied load, and its accuracy shall be tested from time to time by calibration with dead weights. The tension indicator shall not jump back more than 0.5 per cent when the specimen breaks.

Machine for which the load is applied by tension on a spring should not be used.

(b) The grips shall separate at a uniform rate of 50 cm. per minute, except in the case of friction pulls where the rate of separation should be 25 mm. per minute, or for testing hard rubber the rate of separation shall be 4 mm. per minute.

(c) The grips shall tighten automatically and exert a pressure proportionate to the applied tension. The grips shall exert a uniform pressure across the width of the test piece regardless of any variation in the thickness of the rubber. If the nature of the rubber is such that the jaws cut it in course of test; e. g., pure gum inner tube stocks; a jaw such as was made by Henry L. Scott & Co. for the Chemical Warfare Service is much more satisfactory.

(d) A device for instantly starting and stopping the motion of the movable jaws and means to enable the operator to rapidly return the movable jaws to their initial position.

Computing Results

Tensile in kilograms per square centimeters equals

$$\frac{B}{W \times T} \times 100$$

B = Tension in kilograms indicated by machine at breaking-point.

W = Width of test piece measured to 0.01 mm.

T = Thickness of test piece measured to 0.01 mm.

In other words, the tensile in Kg/cm² is obtained by dividing the breaking load expressed in kilograms by the cross section area of the test piece expressed in square centimeters.

Elongation: The ultimate elongation should be measured with a steel tape graduated to millimeters, attached to trammel points fixed on a rod running parallel with the test piece and so arranged that they slide on this rod. The trammel points are then always kept even with the marks on the test piece, and after the piece has broken the scale will record the distance between the marks at the time of breaking. If the initial distance between the marks was 50 mm. and the distance between the marks at the breaking-point was 150 mm., the per cent elongation will be 150 mm. minus 50 mm., divided by 50 mm. multiplied by 100 equals 200 per cent. Or it may be expressed by

$$\frac{Lf - Lo}{Lo} = 100 = \text{per cent elongation.}$$

Where Lo equals initial distance between the marks, Lf equals distance between the marks at the breaking-point.

Set: The test specimens shall be prepared the same as the pieces used for tensile and ultimate elongation tests. Its operation is as follows: The specimens being in the grips, one of the spools is moved along the shaft until it engages the corresponding pin, and the shaft is revolved until the specimen has been stretched to sixty per cent of the breaking elongation measured between gage marks. The clamp is tightened to hold the specimen in this position for ten minutes. The specimen is then released and allowed to rest under no elongation for five minutes. It is then stretched to sixty per cent as before and held ten minutes again, then released and allowed to rest another five minutes. Again stretched to sixty per cent as at first and held a third ten-minute period, after which it is released, and after being allowed to rest five minutes the final measurement of the distance between the two marks is made. The initial distance between the two marks subtracted from the final distance gives the increase in length or the set, and this distance divided by the original length multiplied by 100 expresses the set in per cent of the original distance. For example, if the original length is 50 m.m. and the final length is 57.5 m.m., the set in per cent would be 57.5 minus 50 m.m., divided by 50, and multiplied by 100 equals 15 per cent.

Taking of Time

Taking of time: All measurements of time shall be by means of a stop-watch or with a watch having a second hand. The fundamental methods of testing are so made throughout the entire rubber specifications that the following procedure shall be uniform. After placing any test piece in the machine ready for stretching the piece shall be drawn just taut and the stop-watch started at the instant of the beginning of the stretch.

Then in case a piece is held for ten minutes at a certain distance, the time shall be again measured at the moment the piece is released. This moment is simultaneously the beginning of the period of rest. The measurement is then to be taken at the instant of the expiration of the second ten minutes.

When the specifications call for a one minute stretch and one minute rest, the time consumed in stretching to the specified elongation shall not exceed fifteen seconds.

Friction adhesion: Definition of Friction—By friction test is meant the strength of the adhesion of the fabric plies for which will meet the test given in the various specifications for adhesion between the fabric piles or between fabric and cover.

Method of making test: A section a little over 25 m.m. in width should be cut and raveled down to exactly 25 m.m. After starting the separation as previously described under "Preparation of Test Pieces," the ends of the pieces are gripped in the jaw of the testing machine, after which separation is effected by running the machine so that the jaws separate at a uniform rate of 25 m.m. per minute. The weakest point shall be recorded and the average taken.

In the case of tire frictions and hose frictions it is usually desirable to make a separation between every ply; with belts the usual practice is to make a separation of two plies at a time.

Apparatus and Method

Apparatus and general method of conducting dead weights tests friction: A testing frame suitable for the purpose shall be used. This may consist of a wooden frame provided with roller bearings at the top in which a mandrel is free to revolve. The total weight, including the clamp, suspended from the test piece, shall be equal to that called for in the specifications.

A movable platform should be provided for supporting the

weight while adjustments for the tests are being made. The arrangement should be such that the platform may be gradually lowered until the weight is carried by the test piece, after which it should be dropped or swung to the side. In every case this operation should be accomplished without a jerk. With the weight hanging freely from the test piece, a mark shall be made along the line of separation of the layers, and at the same instant the time shall be noted for the beginning of the test. At the end of ten minutes, or as great a part thereof as possible, a second mark shall be made along the line of separation. The distance between the marks, measured after the weight has been removed, shall be used in computing the rate of separation.

Plied Hose

Plied hose: In preparing test pieces, a short length of hose is pressed tightly over a slightly tapered mandrel. The mandrel is put in a lathe and 25 m.m. rings are cut with a pointed knife. Beginning at the lap, a short length of the fabric is separated and the ring is pressed snugly over a mandrel, which is placed in the roller bearings on the test table. To the detached end of the fabric is fastened a clamp provided with a hook or ring from which the weight is to be supported.

Cotton rubber lined hose: In preparing a sample of cotton rubber lined hose, a 5 cm. section shall be taken and cut at the lap so as to give a strip equal in length to the circumference of the hose. From this section a 40 mm. strip shall be cut with as little injury as possible to the cotton jacket. The jacket shall be separated from the lining for about 40 mm. at one end. The detached end of the jacket is held in a stationary clamp which is supported by the testing frame and the specified weight is suspended from the rubber lining.

Rubber Belting

Rubber belting: When testing rubber belting, a 25 mm. strip cut either longitudinally or transversely shall be used. The strip shall consist of two plies of fabric only. These plies to be the second and third plies of the belt numbering from the top cover or from the bottom cover, as may be desired.

Packing and gasket material: When testing packing or gasket material, the pieces shall be prepared and tested as in the case of cotton rubber lined hose, unless the thickness or rubber is greater than 27 m.m., under which conditions the piece shall be prepared in such a way that the rubber part is to be clamped at the top and held immovable while the weight is to be clamped to the fabric. The test strips shall be cut in both directions.

Tucks packing: The friction in round tucks packing shall be tested by the same method as is used in plied hose, the core being drilled out to permit the insertion of a mandrel. Whenever the core is 5 m.m. or less in diameter it shall be tested in its original shape. When it is over 5 m.m. in diameter a piece 15 cm. long shall be separated from the fabric and cut and buffed on four opposite sides to form a square section 2 m.m. by 2 m.m. in the center of the test piece. The 2 m.m. square shall be at least 25 m.m. in length.

Hydraulic pressure test of rubber hose: The hose shall be stretched out for inspection, connected to the pump and filled with water, leaving the air cock open to allow the air to escape. The air cock shall then be closed with a pressure of 1 kg. per square centimeter applied. The test is then begun by taking original measurements without releasing the pressure.

Pressure Measurements

All pressure measurements shall be made with a standardized gage. The increase in pressure shall be at the rate of 715 kgs. per sq. cm. per minute, and the hose under test shall be held for measurement not more than two minutes, unless otherwise called for in the specifications. The hose under test should be protected by a frame of metal or wood, or of heavy plate glass so that in case a piece breaks during the test the operator will not be injured.

Public Holidays for May

The following calendar of bank and public holidays, which will be celebrated in May in the states and countries and on the dates enumerated below, is furnished by the Guaranty Trust Company of New York:

Saturday, May 1—Argentina (Labor Day), Costa Rica, Czehoslovakia, Haiti, Philippine Islands.

Sunday, May 2—Brazil (State of Espirito Santo), Porto Rico, Spain.

Monday, May 3—Azores, Brazil, Canary Islands (Teneriffe and Las Palmas), (unofficial), Madeira Islands, Poland, Portugal, Queensland (Labor Day), Scotland (Bank Holiday).

Tuesday, May 4—In the United States: California (Presidential Primary Election).

Wednesday, May 5—Egypt, Hejaz, Mesopotamia, Mexico, Persia, Turkey.

Thursday, May 6—Bulgaria, Ceylon, Mauritius, Rumania.

Monday, May 10—South Australia.

In the United States: South Carolina (Confederate Memorial Day).

Wednesday, May 12—Switzerland (Basel and Zurich).

Thursday, May 13—A holiday (Ascension Day in Algeria, Argentina, Austria, Basutoland, Bechuanaland, Belgian Congo, Belgium, Brazil, Canada (Quebec), Canary Islands, Chile, Colombia, Curacao, Denmark, Dutch East Indies, Dutch Guiana, Finland, France, French Guiana, French Indo-China, French West Indies, Germany, Guatemala, Haiti, Hungary, Iceland, Jugo-Slavia, Madagascar, Malta, Mexico (half day), Monaco, Morocco, Netherlands, Norway, Peru, Poland, Rhodesia, South African Union, Spain, Sweden, Switzerland, Turkey, Uruguay, Venezuela, Ceylon (Hindu New Year).

Friday, May 14—Paraguay (Independence Day), Soviet Russia (Labor Day). In the United States: Rhode Island (Arbor Day).

Saturday, May 15—Paraguay (Independence Day).

Sunday, May 16—Czechoslovakia (unofficial).

Monday, May 17—Norway (Independence Day).

Tuesday, May 18—Brazil (State of Sergipe), Uruguay.

Wednesday, May 19—A holiday (Ramadhan) in Egypt, Hejaz, India, Mesopotamia, Persia, Turkey.

Thursday, May 20—Cuba (Independence Day), Don Republic, Egypt, Greece, Hejaz, Mesopotamia, North Russia, Persia, Rumania, South Russia, Soviet Russia, Siberia, Turkey, Ukrainia.

In the United States: North Carolina.

Friday, May 21—Chile (Army and Navy Day). In the United States: Oregon.

Saturday, May 22—Don Republic, Egypt, Sweden (half day), North Russia, Siberia, Ukrainia.

Sunday, May 23—Brazil (State of Espirito Santo), Palestine, Turkey.

Monday, May 24—A holiday (Whit Monday) in Algeria, Austria, Belgian Congo, Belgium, British Guiana, British Honduras, China (unofficial) Curacao, Denmark, Dutch East Indies, Dutch Guiana, Egypt (Alexandria) (observed by Christians) Federated Malay States, Finland, France, French Indo-China, French West Indies, Germany, Hungary, Iceland, Madagascar, Monaco, Morocco, Netherlands, Norway, Poland, Siam (Bangkok), Swaziland, Sweden, Turkey (observed by Christians), United Kingdom, Windward Islands.

Also a holiday (Empire Day) in Bahamas, Basutoland, Barbados, Bechuanaland, Bermuda, Canada, Caymen Islands, Ceylon, Cyprus, Gibraltar, Hong Kong, India, Jamaica, Leeward Islands, Malta, Mauritius, Newfoundland, Nyasaland, Rhodesia, Straits Settlements, Trinidad and Tobago, Turks and Caicos Islands, Bulgaria, Ecuador, Union of South Africa.

Tuesday, May 25—Argentina (Independence Day), Uruguay (Liberty Day).

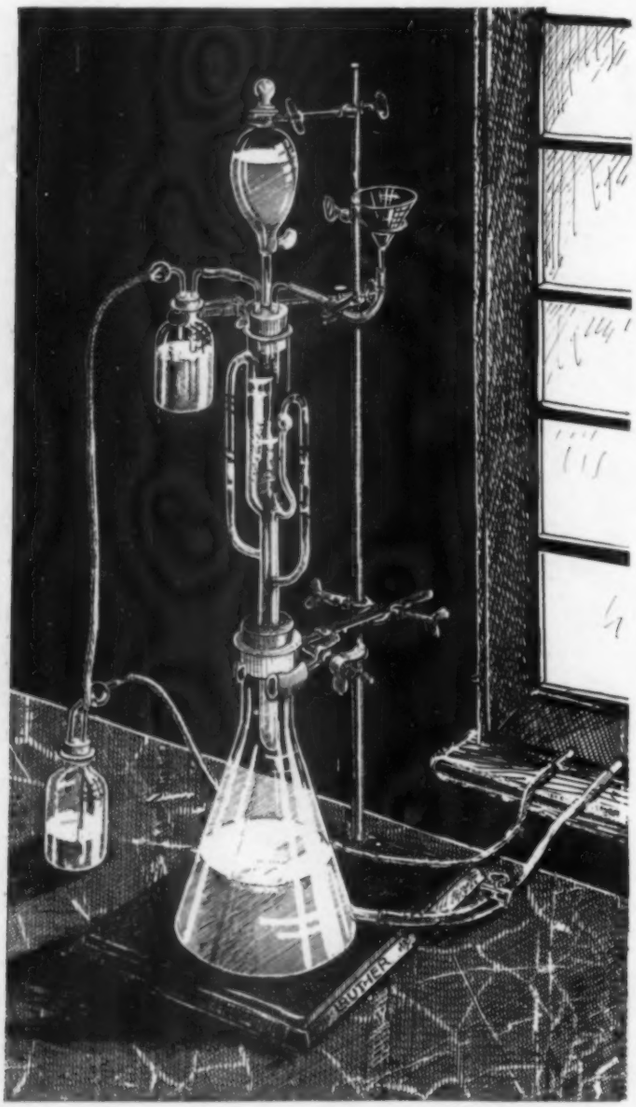
(*Continued on page* 18)

Apparatus for Generating Hydrogen Sulphide

By D. Repony

Hydrogen sulphide, despite its extremely bad odor, is unfortunately, one of the most essential reagents in chemical analysis. Every effort made to discover a substitute for this unpleasant assistant has been fruitless. Inasmuch as its use is absolutely necessary care should be taken to see that its disagreeable odor only reaches the place for which it is intended and is not allowed to permeate the atmosphere of the laboratory.

The great majority of chemists undoubtedly realize the poisonous effects of inhaling hydrogen sulphide even in small



Apparatus Used in Generating Hydrogen Sulphide

quantities, but unfortunately many of them learn from experience and suffer severe headaches from leaky apparatus or from careless handling of the gas. Every man should realize that a canary bird cannot live for more than twelve hours in an atmosphere containing one-half per cent of hydrogen sulphide and should accordingly take all possible steps to prevent the escaping of this gas into a room in which men and women are constantly working.

Many chemists realize the bad effect of hydrogen sulphide upon the human system and as the result of this realization many kinds of apparatus have been designed for generating this gas. Although every type has its own particular advantages it cannot be said that any of them is entirely satisfactory.

The apparatus shown and described herewith was originated by the writer and has been worked out to such an extent that it apparently satisfies all requirements. The following points are worthy of particular consideration:

First. The apparatus is so constructed that it is an easy matter to keep all connections leak-proof. Another feature used for the absorption of the gas is a bottle similar to the one used for washing the gas so that any of the unabsorbed gas is led by means of a rubber tubing through the window to the outside air. The used acid, that is, the iron sulphide and washings, are also led through the window frame to the outside. In case it is not desirable to have the odor around the building, the tubing should be connected with a sewer or with a covered pit in order that the solution may be absorbed into the ground.

Second. The apparatus has been constructed with the idea of being able to check the reaction instantly whenever desired. This is conveniently accomplished by pouring water into the funnel and opening the clamp so that the acid is removed.

Third. It is possible with this apparatus to generate large or small quantities of gas. It is hardly necessary to state that when only a small quantity of gas is required only a small quantity of the acid should be allowed to flow from the funnel. When large quantities are used in order to obtain the greatest possible economy, just enough acid should be allowed to flow into the Soxhlet containers to cover the iron sulphide charge. The level of the acid should be at least three-quarters of an inch below the outlet tube, and no additional supply of the acid should flow in before the first reaction has been completed. Then the neutralized acid, the iron sulphide solution, should first be washed down with water before the fresh acid is allowed to flow again.

This apparatus can be made up from parts which are to be found in practically every laboratory.

Public Holidays for May

(*Continued from page* 17)

Wednesday, May 26—Baltic States.

Thursday, May 27—Rumania.

Sunday, May 30—Cyprus, Don Republic, Greece, North Russia, South Russia, Siberia and Ukrainia, Panama (unofficial).

In the United States: Decoration Day in 40 States and in all American possessions. (See May 31).

Monday, May 31—Basutoland, South African Union, Bechuanaland, Panama (probably).

Decoration Day will be celebrated on this date in the following states: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming; also in Alaska, Hawaii, Philippine Islands and Porto Rico.

Emarex—Its Origin and Uses

By Charles Muller

General Manager of the Standard Emarex Company

The word "Emarex" is well known to the rubber industry over the entire world. As I have been associated with Emarex since it made its first appearance on the market in 1906, I will briefly explain to those not familiar with this product or its meaning how this word was adopted.

Emarex was first marketed as M. R., being an abbreviation of the words, "Mineral Rubber." Like all good things, it soon had imitators who marketed inferior products, using the same abbreviation. To distinguish our product from the others, we then adopted the combination M. R. X., the X standing for extra (Mineral Rubber Extra). For several years we used the letters, "M. R. X.," and to protect this combination George Watkinson then conceived the idea of coining a word having the same sound simply by prefixing the letter "e" before the "M" and an "a" between "M" and "R" and an "e" before the "X," with a result "e M a R e X." We were then able to have this protected in the United States and Foreign Patent Offices, and this trade-mark has always stood as the leader in its line. To further distinguish our product, we also adopted the red steel drum with the friction cap as our proprietary package.

Base of Emarex

The base of Emarex is uintaite (derived from the name of a tribe of Indians), being a black, solid, natural hydro-carbon mined in Utah. The occurrence of uintaite is most unusual, being found in veins from a few inches wide to a width of several feet, enclosed between walls of solid rock. These veins sometimes extend for several miles across country, their depth being unknown. In the opinion of geologists, these deposits were formed in some remote age during an earth convulsion, when the material in plastic state was forced into the rock fissures while under tremendous pressure and at exceedingly high temperatures. Uintaite is quite unlike all other deposits of natural hydro-carbons. The difference is so marked that authorities on solid bitumens grant it a separate classification. A great many attempts have been made to duplicate the characteristics of uintaite by distilling asphaltic petroleum, and they never have proved fully successful, for man does not command the tremendous forces that were at work when the uintaite deposits were formed.

Nature of Uintaite

Uintaite being a hard, brittle substance, breaks with what is known as a conchoidal fracture. It is dull and lusterless in appearance where it has been exposed to weather action and temperature extremes, but upon the removal of the slightest particle the appearance is brilliant black, demonstrating that no physical change has occurred through ages of exposure. It is natural that a material of such unusual origin should display unusual qualities, one of the most notable being, after conversion into Emarex, its assimilation by pure rubber or reclaimed stock. Antipodal in physical qualities to rubber, yet forming a complete chemical union with it, is a fact explainable only by the similarity of their atomic structure, both being $C_{10}H_{16}$.

When it was discovered that Emarex had the same atomic structure as rubber, exhaustive experiments were then carried on. It was found that when mixed with rubber the two materials could never again be returned to their original forms. This then led on to further experiments, and it was discovered that Emarex could be substituted in various percentages in place of rubber without loss of tensile strength. This formed a new substance greatly increased in bulk and different from either pure rubber or Emarex. The result was the rubber fibers were thickened and greatly strengthened. Further, Emarex having the initial qualities of preservation, it fortified the rubber products against destructive influences.

Emarex possesses certain very distinct advantages not found in crude rubber. It especially has wonderful ageing quality, which it imparts to the crude or compounded rubber, or to the reclaimed stock, thus answering a great purpose, because permanency is a prime factor in the rubber field, unalterable permanency in certain rubber products being an essential. When Emarex is used in the compound it insures it against deterioration from heat, cold, light, moisture and all other ageing influences.

LARGEST VEIN OF UINTAITE IN THE WORLD, UINTA COUNTY, UTAH

Interesting Illustrations

A typical illustration of how Emarex preserves and strengthens rubber is shown in the following formulae (containing high-grade rubber) and tests of two mixtures of equal age and exposed under identical conditions.

No. 1.		No. 2.	
66	Fine Para	48	Fine Para
34	Compound	25½	Compound
		26½	Emarex
100		100	
Tensile strength, 2,686 lbs.		Tensile strength, 2,450 lbs. 37½ percent less rubber.	

No. 3.		No. 4.	
66	Pale Crepe	48	Pale Crepe
34	Compound	25½	Compound
		26½	Emarex
100		100	
Tensile strength, 2,450 lbs.		Tensile strength, 2,150 lbs.	
		37½ percent less rubber.	

Formula No. 1 has 37½ per cent more rubber than No. 2 and has only about 9½ per cent more strength. Formula No. 3 has 37½ per cent more rubber than No. 4 and has only about 14 per cent more strength. This proves that percentages of rubber may be withdrawn without reducing strength.

The samples made up under these formulae were then subjected for two years continuously to constant daylight, to the hottest summer sun, all the year's rain, snow and cold.

Sample No. 1 (having 37½ per cent more rubber) lost in tensile strength 55 per cent, while Sample No. 2 (containing Emarex) lost only 20 per cent.

Sample No. 3 (having 37½ per cent more rubber) lost in tensile strength 68 per cent, while Sample No. 4 (containing Emarex) lost only 36 per cent.

Experiments were also made on cheaper mixtures as follows:

No. 5.		No. 6.	
33½	Para	29¼	Para
46	Whiting	39	Whiting
2	Lampblack	2	Lampblack
17½	Litharge	16	Litharge
	Sulphur	¾	Sulphur
		13	Emarex
100		100	

No. 5 had a tensile strength of 833 lbs.
No. 6 had a tensile strength of 861 lbs.
While 4 lbs. of rubber were withdrawn from No. 6 the strength was increased 3 percent.

The investigation was extended to a still cheaper mixture, as follows:

No. 7.		No. 8.	
29	Plantation	23	Plantation
54	Whiting	47	Whiting
2¼	Lampblack	2¼	Lampblack
14	Litharge	14	Litharge
¾	Sulphur	¾	Sulphur
		10	Emarex
100		100	

No. 7 had a tensile strength of 571 lbs.
No. 8 had a tensile strength of 685 lbs.

From No. 8, 3 lb. of rubber were withdrawn and strength increased 20 per cent. In both of these Emarex mixtures there is an increase of spreading surface. A test mixture was also made of Emarex vs. whiting.

No. 9.		No. 10.	
40	Para	40	Para
30	Emarex	30	Whiting
	75 percent to the rubber	20	Zinc
20	Zinc	8	Litharge
8	Litharge	2	Sulphur
2	Sulphur		
100		100	

No. 9 had a tensile strength of 1,856 lbs.
No. 10 had a tensile strength of 1,281 lbs.

This shows that No. 9 with Emarex is 44 per cent stronger than whiting.

After keeping samples of Nos. 9 and 10 in a box for a period of five years, they were again tested for tensile strength, and it was found that the whiting sample (No. 10) had dropped to 675 pounds, while the Emarex sample (No. 9) was as strong as at first (1,856 lb.)

We still have numerous samples in our possession made as far back as 1908, proving that Emarex gives flexible permanency to rubber compounds and overcomes the tendency of rubber to harden and decompose with age.

In addition to preserving the tensile strength, Emarex can displace rubber from 5 per cent to 50 per cent, thus showing a great saving in cost to the manufacturer. Emarex is being extensively used in all grades of rubber goods such as boots and shoes, tires and inner tubes, mechanical rubber goods, raincoat fabrics, sheetings, etc.

It is impossible in an industry of such scope as the manufacture of rubber products to mention the numerous ways in which a material like Emarex can be employed. We have spent considerable time and quite a fortune in working out formulae with the use of Emarex, and in this way we have been able to render considerable assistance to the rubber industry. We keep in constant touch with the practices followed by rubber manufacturers, and also conduct experiments of our own. Preference is given Emarex by rubber manufacturers, for it is precisely that kind of material which will enable them to produce high quality goods. Although many substitutes have made their appearance on the market, we have absolutely held to the policy of producing a superior article, and we have never spared in time or money to accomplish this. We feel that is the best way to come into public favor and to succeed to the big business of the world.

Increasing Demand for Quality

At times great stress is laid on chemistry as an argument that other products will analyze in the good laboratory the same as Emarex. Chemistry is a good thing as a matter of control in production, but it cannot always prove a theory or a test made in a laboratory. Things may have the apparent same chemical characteristics, but when put into actual physical test over a long time period they will not always stand up. The manufacturer who will rely altogether on such tests often goes wrong, but we always bide our time, for we have full confidence that when it comes to a long time physical test there is no product which will ever be the equal to Emarex. The principle of giving quality has been dominant in the affairs of our company. We believe that freedom from complaints and superior finished products on the part of the rubber manufacturers are more desirable than a mere "catch-penny price." To many minds efficiency is linked with a reduction in cost. To-day nothing is accepted as truly efficient which does not reduce cost in the long run. Emarex enables rubber manufacturers to produce the excellence in the finished goods for which they are striving, thus it represents an advancement in the rubber industry.

There is an undercurrent of change going on, and the public is gradually turning wisely to the better article. The idea of better rubber products is gaining ground rapidly with the big wave of change in public opinion.

The rubber industry is still in its infancy and many changes may be looked for in the future. We feel that Emarex has already done much toward the advancement of better rubber goods, and quoting our own phrase, "next to sulphur, 'Emarex' is the most important ingredient ever added to rubber."

Elmination of Barium Sulphate

As is known, the barium sulphate precipitation carries down with it many foreign substances on precipitation. On this account, an exact determination is made very difficult. After researches with barium sulphate of different degrees of dispersion, simple acclusion can play no great part. Also the absorption theory does not apply. According to R. March (Leitsche f. physik. Chem. 76-58-1911) barium sulphate absorbs no crystalloids. Researches with already formed basox and different concentration of mixtures of Felz Hee also shows against it. (The principles set forth may possibly be arrived at too quickly. Only in neutral reacting solutions of Felz variation took place. This does not depend on absorption, however).

J. M. Kolthoff and E. H. Vegelenzang

News From the Rubber Metropolis

H. B. Bixler Company, of Akron, to Furnish Unusual Service to Manufacturers—Goodyear Tire & Rubber Company Wars on Profiteers —Akron Stock Prices

Bixler Gives Manufacturers Service

(*Special Akron Correspondence*)

With the announcement of the formation of the H. B. Bixler Company, Akron, Ohio, comes further information concerning its activities.

Through extended experience as consulting, electric and mechanical engineer for various companies engaged in or about to manufacture rubber products, the lack of co-ordinate control of production and materials was found to be conspicuous.

With this as a basis, H. B. Bixler organized the company which bears his name, to supply a service covering not only the erection of plant and the installation of equipment, but also the supervision of processes, the testing of raw materials and finished products.

This may, at first sight, appear to be nothing out of the ordinary, but further reflection will show the far reaching value of such an organization. For example—capitalists contemplating the manufacture of rubber products, are enabled to obtain their buildings, machinery, processes, manufacturing data and even their personnel delivered in operating condition. A manufacturer already engaged in production, is confronted with a problem where competition threatens profits, or where he is suffering serious financial losses because "something has gone wrong." He has never had available a place where he could take such difficulties for discussion with men qualified to render unbiased opinion and assistance until the organization of the H. B. Bixler Company made this possible.

Land has been purchased and plans completed for the erection of a two story building 80 feet by 300 feet, to be used for the installation of a complete and modern rubber factory where all of the necessary machinery as well as new processes may be tested on a practical, commercial scale. The equipment also includes a very complete chemical and physical laboratory.

Manufacturers of rubber working machinery will have facilities for developing their machines if desired and demonstrate them to prospective customers under actual operating conditions. Those contemplating the manufacture of rubber goods may arrange with the company to turn out salable goods under their own supervision, while their plants are in course of construction.

The mechanical and electrical engineering division of the company will continue under the management of H. B. Bixler, with a staff of engineers already engaged, as assistants, who are fitted for the work by long experience in their several lines. Process and production work will be under the direction of M. L. Allard, associated for many years with the Gutta-Percha & Rubber Company, Ltd., and the Dunlop Tire & Rubber Goods Co., Ltd., both of Canada.

The executive staff will be complete with the services of H. C. Roller, who is in charge of the technical laboratories, as he brings to the organization an extended experience of some fourteen years with the Celluloid Company, of New York, and the B. F. Goodrich Company.

Goodyear Wars on Profiteers

(*Special Akron Correspondence*)

Food profiteers and price boosters in Akron, Ohio, are about to meet their Waterloo in so far as the further victimizing of employes of the Goodyear Tire & Rubber Company is concerned.

Thoroughly aroused by the steadily mounting cost of food stuffs and the apparently exorbitant profits being reaped in many instances, veteran Goodyearites of the employes' service division have opened an employes' food store in the new million dollar Goodyear club house, the company itself matching their efforts

C. C. Moffitt

by securing the services of C. C. Moffitt, of Toronto, Canada, as commissary manager. The store will deal with foodstuffs exclusively for Goodyear employes and their families, and expects to sell in quantities and at a strict cost basis. Mr. Moffitt, who has had wide experience in the mercantile business in Canada, assumed charge of the store early in March, almost immediately announcing the purchase from Chicago of a carload of ham and bacon for the Easter trade. He has also contracted for a carload of peas for fall delivery, and a carload of granulated sugar for immediate delivery. Sugar will be sold to employes of the company in 25 pound lots, at 17½ cents a pound. No unmarried Goodyearite will be permitted to purchase supplies at the store unless he lives at home.

This last ruling has been prompted by the concerted effort of food hoarders in East Akron, to take advantage of the reduced prices by attempting to persuade Goodyear men rooming at boarding houses, to purchase sugar and other supplies for them. Some of these houses have as high as twenty-five Goodyear employes as roomers, which would mean diverting 625 pounds of sugar from Goodyear families in each case. In order to prevent such food hoarding and profiteering, two uniformed policemen will be on guard to see that only employes of the company enjoy the benefits of the sale. Any Goodyearite caught abusing the privileges of the sale will be dealt with by the company's industrial assembly, composed of employes duly elected by their fellow men, and divided into two legislative bodies which function similarly to the house of representatives and senate of the national congress.

Mr. Moffitt will also have charge of the purchase of supplies for all Goodyear restaurants. This in itself is recognized as a task of no small proportions, for with more than 30,000 employes on its Akron payroll, the company now is serving an average of 10,000 meals daily in its four cafeterias and factory and office lunch rooms.

Other Akron rubber companies have inaugurated drives against old General H. C. L. along the same plans. Some have even gone further. One popular branch of the drive appears to be the selling of men's clothing at cost at the Miller and Firestone plants.

All companies have restaurants where meals are served at a cost lower than other places in the cities. All sell working supplies to employes such as overalls and gloves.

In one branch of the drive, however, none of the companies have been able to deal a telling blow,—that is the housing problem. All have sought to help employes buy homes, some building many dwellings for that purpose. But it has been just recently that plans have been made to provide houses for rent.

This summer the Firestone Tire & Rubber Co. plans to provide rental properties for 100 families. The Goodyear plans a big dormitory for girls and has ordered the construction of a miniature cantonment for men employes patterned after the army camps.

Akron Stock Prices

(*Special Akron Correspondence*)

Investors in Akron rubber stocks evidently had discounted the recent increase in tire prices as stocks have failed to develop any great strength on the local exchange since the new lists went into effect. Stocks which responded to the recent supreme court ruling on stock dividends continue to hold their gains. Otherwise the market is fairly stationary.

There appears to be a good demand for rubber issues and sudden breaks and rises in the more active stocks have little effect on the Akron market.

Following are the quotations of April 1:

	Bid.	Asked.
Amer. R. & T., com.	88	95
Amazon Rubber	..	101
Firestone, com.	168	170
Firestone, 6 per cent.	92	93
Firestone, 7 per cent. pfd.	96½	97½
General, com.	600	..
*General, pfd.	90½	100½
B. F. Goodrich, com.	69	71
B. F. Goodrich, pfd.	94½	95½
Goodyear, com.	390	400
*Goodyear, 1st pfd.	99½	100
*India Rubber	185	200
Kelly Springfield	128	132
Mason, com.	30	..
Mason, pfd.	..	75
Marathon, com.	50	55
Miller, com.	188	193
Mohawk, com.	..	335
Portage, com.	96	99
*Portage, pfd.	95	88
Republic, com.	3½	4½
Republic, first pfd.	..	65
Republic, second pfd.	35	50
Rubber Products	110	125
Star Rubber, com.	350	..
Star Rubber, pfd.	99	..
Swinehart, com.	75	90
*Swinehart, pfd.	..	90
Phoenix Rubber, com.	..	23
Phoenix Rubber, pfd.	..	90
Standard Tire, com.	175	200

* Ex-dividends.

Goodyear's California Squadron

(Special Akron Correspondence)

Experts in the work of building tires and in modern factory management, are to be transferred to California by The Goodyear Tire & Rubber Company of Akron, to form the nucleus of the factory organization of the new California Goodyear plant, at Los Angeles. The western factory will be in operation by July 1, with 5,000 employes and a capacity of 5,000 tires daily.

C. C. Slusser, manager of the personnel department of the parent company, goes to California as factory manager. He is shown standing to the left of P. W. Litchfield, factory manager, in the center of the first row. On the opposite side of Mr. Litchfield is Herman Barron, new division superintendent in charge of tire production in California. C. R. Langdon will be in charge of the California Squadron.

In the group are F. A. Foster, W. E. Patterson, J. P. Williams, F. Wiedler, H. O. Cookson, A. Sines, C. Allen, J. Crawford, George Butcher, R. Mayfield, J. Hayes, H. Palmer, H. Parsch, A. Nutting, C. Brondy, J. Etter, R. Toothman, F. Hager, G. Henry, C. Webber, J. Headricks, J. Kinney, H. Demmy, R. Hancock, W. Race, H. P. Wells, C. Horner, C. Scott, D. Hartup, R. A. Barmore, F. Dent, C. J. Stone, J. Tubbs, R. J. Carrick, E. Wendling, E. O. Camp, C. Ward, W. A. Wilkenson, L. Ranney, E. Barth, J. H. Wilson, W. Tyree, W. Billings, J. W. Spaid, C. Leavengood, C. F. Kerrick, C. Misloh, L. Clark, B. Kirk, R. Young, S. C. Simpson, J. Reed, L. Jarrett, W. McCandles, E. Bostwick, A. B. Loos, H. Ruff, J. C. Frashure, E. Bergstrand, F. Prindle, H. Barrows, T. Nugent, G. Hain, C. E. Smith, W. Fillion, W. M. Bower, G. Presley, P. McConnaughy, F. F. Myrick, J. Plumbly, L. Sutton, N. Chapman, J. Mack, A. Harding, F. McKeighan, J. Liggett, N. Hotyle, J. C. Kelley, W. Kummeral, E. Dille, P. Downing, W. McElroy, H. McNulty, R. Carroll, F. O'Leary, J. Shobe, J. Clement, S. Brenninger, J. O. Kirtley, E. Cooksey, F. Bates, J. Henry, W. E. Floyd, W. G. Brown, J. P. McCarthy, R. West, R. Overton, P. Bell, C. R. Kidder, W. S. Burns, C. W. Bates, M. P. Hebblethwaite, P. S. P. Brine D. George.

GOODYEAR'S CALIFORNIA SQUADRON

Oxford Tripoli Moves Offices

Announcement has been made to the effect that the offices of the Oxford Tripoli Sales Co., Inc., have been removed from New York to the Peoples Bank Building, 1 Broadway, Haverstraw, N. Y. This will permit closer cooperation between the office of the firm and the plant, which is also located in Haverstraw.

Firestone Plant for Singapore

A million dollar plant in the Far East is to be built by the Firestone Tire & Rubber Co., according to an announcement made March 24 by officials of the company.

On the banks of the Kalang river, Singapore, Straits Settlement, the center of the world's crude rubber the new buildings will be erected and American machinery destined for the plant in the Far East, and now on its way there, is expected to be instrumental in large part in the saving of hundreds of thousands of dollars annually for the Firestone Company in the production of rubber tires.

Besides eliminating lost motion in the handling of the rubber after it comes from the plantations, the new Firestone plant, which will be on the outskirts of Singapore, will condition the rubber and compress it in such manner that it will require less space in the holds of ships, a substantial saving in freight costs thereby being effected.

According to S. G. Carkhuff, secretary of the company, who returned to the United States recently after six months spent in the Far East, the plant will requisition the productive efforts of 10,000 persons throughout the year in meeting the company's crude rubber requirements, and will be the only one of its kind owned and operated by a rubber tire company.

It will be operated as a subsidiary company.—The Firestone Tire and Rubber Co. (S. S.), Limited—which was organized for that purpose.

Rubber Sought in Hungary

In a recent bulletin of the Commercial Intelligence Branch, of the Department of Trade and Commerce of Canada, is a statement that India rubber, gutta-percha and articles manufactured of rubber are needed in Hungary. Owing to the financial condition of that country the principal items sought are raw materials and semi-manufactured articles as these can best be used in the reconstruction of the economic life of the country which has been almost entirely destroyed.

Continental Tire to Build

The Continental Tire and Rubber Co., with general offices Linz building, Dallas, Texas, has seventeen acres consisting of blocks 80, 81, and 82 entirely, as well as lots 7, 8, 9, 10, 11 and 12 of the original townsite at Dalworth Park, upon which they intend to erect the Continental Tire and Rubber Manufacturing plant, buildings and equipment for which will cost some $500,000. Two brick buildings, one of which is a two-story structure with offices above, were also acquired.

The Continental Tire and Rubber Co. was organized some three months ago under the name of the Gibraltar Tire and Rubber Co., but since that time the firm has acquired valuable patents covering cord tire construction, allowed by Canada and Cuba, as well as improved designs for treads, tubes, rubber heels, etc., and these patents have been added to what they already had. It has been decided in the best interests of the company to change the name to the Continental Tire and Rubber Co. in order that there might be no confliction.

It is the purpose of the company to build only cord tires. Plans call for an output of 300 cord tires daily and 1600 tubes. About 300 people will be employed in eight-hour shifts.

The Continental Tire and Rubber Co. will operate on a partnership basis with its fellow workers, even to a company grocery store, drug store, etc.

Officers of the firm are: F. W. Strang, president; W. O. Sypert, vice-president; J. C. Daspit, secretary-treasurer; Ira G. King, Jr., purchasing agent; Prof. A. G. Koenig, chemist.

New Terminal for Portland

Portland, Oregon, is proud of the freight-handling records that are being made at its new harbor terminal. This new municipal dock system, which is now about one-third completed, is being built in units and when completed will form one of the finest and best equipped terminals in the United States. The advantages of modern equipment at ocean terminals was recently shown in the prompt handling of a cargo of five thousand tons of rubber. This arrived from Singapore on the steamer West Hartland and was unloaded, inspected, weighed, and started on its journey across the continent within seven days.

One of the distinct features of the terminal system will be the splendid facilities for handling immense quantities of grain. Portland is the largest flour-manufacturing city on the Pacific Coast, and in normal times is the second largest wheat-shipping port of the United States. Enormous elevators are being built to handle this trade. The capacity of the first unit, which is nearing completion, is one million bushels. The capacity of the completed units will be two and one-half million bushels.

The money for these improvements has been provided by bond issues. Up to the present time $4,500,000 has been expended, with $6,500,000 to be expended, making a total of $11,000,000.

Wellman-Seaver-Morgan Moves Offices

The manufacturing sales department of the Wellman - Seaver - Morgan Company, which handles the company's sales of rubber equipment and machinery and which is in charge of L. N. Ridenour, moved on March 31, from the company's Akron office to its general offices at 7000 Central Avenue, Cleveland, Ohio.

Personals of the Rubber Trade

Recent Goodyear Promotions—D. L. Brown Heads Association of National Advertisers Committee—H. C. Buchanan Now With International India Rubber Corporation—R. W. Ashcroft Returns to Canada

Recent Goodyear Promotions

The Goodyear Tire & Rubber Company announces three promotions in its sales organization. L. C. Gates has been made manager, H. E. Waldsmith has been selected as branch manager at Akron, and K. H. Dresser has been made branch manager at Newark, N. J.

Mr. Gates entered the employ of Goodyear in a clerical capacity in the assistant division of the automobile tire department in 1915. He handled his work so creditably in that department

L. C. Gates

that it was but a short time before he earned a transfer to the city sales work in the Philadelphia branch. His next step forward was as assistant manager at Philadelphia, followed in 1919 by assignment as manager of the Dayton branch. So greatly was his organization ability evidenced in Dayton that his promotion to the management of motorcycle sales at Akron followed early in 1920.

Mr. Waldsmith's first connection with Goodyear began in 1915 as a special traveling representative in the bicycle and motorcycle tire department. After a year of calling on the large bicycle dealers throughout the country, he was assigned to sell Goodyear motorcycle tires.

During the next two years he called on the maturity of the big motorcycle dealers in the country, until in 1918 he was transferred to the automobile tire department where he remained about a year. His next promotion was to the position of special representative, calling on dealers and motorcycle manufacturers, but on July 1, 1919, he was given added recognition by appointment as branch manager at Youngstown. His splendid record in this city brought further recognition early in 1920 by his appointment as branch manager at Akron.

The first connection of K. H. Dresser with Goodyear came in 1912 as assistant manager of the mechanical goods department. A year later he was sent to Portland, Maine, as branch manager, remaining until April 1, 1915. His ability as an organizer was quickly recognized by his selection as branch manager at Springfield, Mass., which position he held creditably until May 1, 1917. In the summer of that year Mr. Dresser was recalled to Akron to act as staff man on motorcycle tires. He soon was placed in charge of the cycle tire department and made so remarkable a record that on January 1, 1918, he was sent to the New York and New England districts in connection with the company's second sale of preferred stock, in which he was exceptionally successful. Mr. Dresser was then attached to the manufacturers sales department, with headquarters in New York and continued this work with great success until he was made branch manager at Newark early in 1920.

Brown Heads A. N. A. Committee

D. L. Brown, manager of the export division of the advertising department of the Goodyear Tire & Rubber Co., has recently been appointed chairman of the export committee of the Association of National Advertisers, Inc., succeeding J. B. Benson, advertising manager, Advance-Rumely Thresher Company, La Porte, Indiana.

The Association of National Advertisers, Inc., is a body made up of over three hundred manufacturing and industrial organizations like Goodyear, and the Export Committee is made up of the advertising and sales managers of twenty-seven companies, among which are: E. I. DuPont de Nemours Export Company, Hudson Motor Car Company, Burroughs Adding Machine Company, Victor Talking Machine Company, H. W. Johns-Manville Company, National Cash Register Company, National City Company, General Electric Company, U. S. Shoe Machinery Company, Corona Typewriter Company, Carter's Ink Company.

Two vice-chairmen to co-operate with Mr. Brown in the conduct of the affairs of the export committee, one of them being Mark Kellog of the Burroughs Adding Machine Company. The other is W. S. Lockwood, advertising manager of the H. W. Johns-Manville Company.

Buchanan With International India

H. C. Buchanan has recently resigned his position as production superintendent of the Kelly-Springfield tire factory, at Akron, Ohio, to join the International India Rubber Corporation at South Bend, Ind. Mr. Buchanan has been engaged in the manufacture of rubber goods, especially tires for all of the ten years he has been in business. Mr. Buchanan has worked through all the departments, and is an expert in every process used in the manufacture of high grade tires.

The International India Rubber Corporation has been growing so rapidly that the factory manager, J. C. Wilwer, has been compelled to rapidly increase production, in which Mr. Buchanan will be a valuable support.

Ashcroft Returns to Canada

R. W. Ashcroft, for the past four years advertising manager of the United States Rubber Company with headquarters in New York, and previously advertising manager of the Canadian Consolidated Rubber Co., Limited, a subsidiary of the U. S. Rubber Co., has been appointed Director of Publicity of the Ames Holden McCready System, and will presently return to Montreal to take up his new duties.

Mr. Ashcroft was also identified with the export business at one time and the firm with which he was associated as New York manager exported the first automobile tires that ever left the United States. These were Goodyear tires and a set of them were placed upon the car of the late Edward VII, King of England. Another interesting personal item in connection with Mr. Ashcroft's business career was

R. W. Ashcroft

that he was closely associated with Mark Twain and handled most of his business and publishing interests during the last ten years of his life.

T. H. Rieder, president and managing director of the Ames Holden McCready System, states: "Mr. Ashcroft was associated with me as advertising manager when I was president of the Canadian Consolidated Rubber Company, and did such excellent work that the American owners of the Company asked him, four years ago, to go to New York and take charge of the advertising and publicity of the United States Rubber Co. and its allied companies. His success in that capacity has been amply demonstrated.

"Mr. Ashcroft has always been a believer in Canada as a potentially self-contained industrial nation, and is of the firm opinion that today, more than ever before, we are in a position to ourselves develop our own industrial and other resources without recourse to alien assistance. He believes, as all other far-seeing Canadians do, in the support of Canadian-owned, Canadian - manned, Canadian - supported business enterprise, equipped to take care of our domestic needs for any essential product and to compete in foreign markets on a basis of equal or better quality and price."

Anniversary of Monatiquot Rubber

The Monatiquot Rubber Works Company, the well-known reclaimers of South Braintree, Mass., will celebrate its eleventh anniversary on April 10. Instead of following the usual proceedings, and making a semi-holiday of the affair, the event will be signalized by the breaking-in of a new line of equipment, which is expected to increase the factory's output about twenty per cent. The officers felt that with their output sold for a considerable time ahead, there could be no more effective celebration than that marked by an increasing output.

At the last meeting of the board of directors the following were elected: James H. Stedman, president and treasurer; Merton A. Turner, vice-president and sales manager and Benjamin Ayer, general factory manager. Both Mr. Stedman and Mr. Turner are well-known to the trade and committed to the policies which made this company successful. Mr. Ayer, although a new-comer in the directorate of the company, joined it shortly after it began to operate and rose by successive stages to his present position as factory manager.

Portage Issues House Organ

The Portage Tire & Rubber Company, Akron, Ohio, has completed and distributed the first issue of its new house organ "The Portager." This booklet, which contains thirty-two pages, is exceptionally attractive both with respect to the treatment of subjects and general make-up and is profusely illustrated. The cover is particularly attractive and bears the likeness of an Indian clad in buckskins and bearing pack and rifle, silhouetted against the orange disc of the sun. "The Portager" is intended for distribution among all Portage dealers, distributors and branches and is edited by Clyde S. Thompson, director of advertising.

Schweinert Heads A. Schrader's Son

M. Charles Schweinert, who entered the employ of A. Schrader's Son, Inc., thirty-four years ago in the capacity of office boy and who has been associated ever since with the growth and development of that concern from a three-story "walk-up" factory at 32 Rose street, New York, to the present seven-story fireproof building occupying the entire block on Atlantic Avenue and Vanderbilt Avenue, Brooklyn, N. Y., has been elected president of the company.

The new president of A. Schrader's Son, Inc., has long enjoyed a wide popularity among the men who made and who now direct the tire industry. Mr. Schweinert is "M. C. S." to most of them and the same affectionate familiarity marks his relations with the veteran workmen of A. Schrader's Son, who have seen him rise step by step in the management of the firm and have rejoiced for him and with him at every stage of his advancement.

Every improvement brought to the manufacture of tire valves, every saving made in the cost of their manufacture, every widening of their use, have found the new president of A. Schrader's Son, an active contributor thereto. It was due to his untiring energy and long foresight that at no time the rapid increase in the manufacture of automobile tires overtook the output of valves to fit these tires.

The dealers in automobile accessories throughout the country are indebted to Mr. Schweinert for the Schrader sales policy, which is based upon a license agreement and which is designed to permit the smallest dealer to reap the same profit through his sales as the dealer in large cities. This has resulted in giving to the Schrader products a nation-wide distribution, and has prevented the use of these products in the demoralizing practice of "price-cutting."

Mr. Schweinert is also credited with having developed the export department of A. Schrader's Son. It was due to his initiative that the company established factories both in Canada and in England. Under his able management the

M. Charles Schweinert

Schrader valve has reached a position where it is recognized as standard for automobile tires the world over.

The Schrader factory in Brooklyn has long been a model of its kind and the many advantages it offers to its employes are due in a great measure to the personal contact maintained at all times between the officers of the company and the workers.

He is an ardent sportsman and numbers among his clubs the New York Athletic Club, the Columbia Yacht Club, Society of Automobile Engineers, Machinery Club and the Akron City Club.

Goodall Rubber Unhurt by Fire

The Goodall Rubber Company, Inc., manufacturers of hose and mechanical goods, at Race and Eleventh streets, Philadelphia, Pa., was inconvenienced on April 3 by a serious fire which occurred in the adjoining building. In spite of the fact that some of the company's stock was destroyed the firm's service will not be impaired and complete stocks may be had from the warehouses in Philadelphia, New York, Baltimore and Pittsburgh.

Bloomer With Quaker City

William S. Bloomer has been appointed Chicago district manager of the Quaker City Rubber Co., Chicago, Ill. Mr. Bloomer has been identified with the rubber industry in Chicago for many years and has a host of friends in the central and western states as well as in Alaska.

Sightseers Welcome at Goodrich

To keep out the unwelcome book-agent or to prevent the wanderings of mere curiosity seekers, the "No Admittance" sign is, without question, a necessary evil to large factories. Hundreds of manufacturers, however, hide their light under a bushel by plastering their gates with this cold and uninviting "No Admittance" watch dog.

The B. F. Goodrich Rubber Co., Akron, Ohio, is not one of these concerns. They believe that almost every person is a potential purchaser of Goodrich products and so confident are they of their manufacturing policies, that they invite the general public to see for themselves how Goodrich products are made and how scientifically the company treats its factory problems.

Ever since 1914 this company has been giving thought and attention to this feature of good-will promotion. They realize that a large part of the public is interested in acquiring facts about the various items of every-day merchandise they purchase. This information should be made easy for them to acquire. There are two ways in which the purchasing public can become informed: viz. by seeing for themselves, or by learning from the retail seller. How often is it that the retail salesman, who offers you a piece of "Shantung" silk or a piece of fine pottery, knows anything about its origin, history or manufacture?

While this hospitality was necessarily shut off to some extent during the war, it has now been resumed in full force. A force of trained men show and explain to the visitor all he cares to absorb about the mysteries of rubber manufacturing.

Egyptian Cotton Conditions

The following resume of Egyptian cotton conditions during the last week of February has been received by the Alexandria Cotton Company, Ltd., of Boston, Mass.:

The futures market during the week under review has reacted heavily, and the close today—$137.00 for March and $115.00 for November—shows a drop of $44.50 and $25.00 respectively on the prices of a week ago.

This heavy fall has been brought about by the falling off in the demand from abroad, which resulted in a standstill of business at Minet-el-Bassal; during the past two months futures have been pushed up by the daily rise in spot prices, but the position this week has been reversed and the futures market has controlled prices.

All the bullish positions being held by speculators, there was a general rush to liquidate to save what profits still remained; this rush developed into a panic and culminated today in the failure of one broker.

The situation remains dangerous, although sounder than a week ago as a good number of weak positions have been closed out, but any difficulty in meeting next Tuesday's settlement of differences would cause a further decline; if the market stabilizes round about the present level, there might be a renewal of the demand from abroad, which would probably give an upward tendency to prices. Exports have been heavy and stocks are still further reduced.

"New Crop" has been slightly delayed owing to the continuation of inclement weather which has interfered with the preparation of the cotton fields.

News From The Industry At Large

Program of Meeting of Rubber Division of American Chemical Society—Goodyear Plant for Brazil—Advertising Managers of Motor and Accessory Manufacturers' Association Organize

Program of the Rubber Division

Arnold H. Smith, secretary of the Rubber Division of the American Chemical Society, has recently announced the program of the division for the meeting which will be held in the Hotel Statler, St. Louis, Mo., on April 14 and 15. The program is as follows:

1. Discussion of the report of the committee on "Physical Testing."
2. W. K. Lewis and W. H. McAdams, "Bromine Addition to Rubber."
3. J. N. Bierer, "Relative Value of Shoddy in Mechanical Rubber Goods."
4. W. K. Lewis, "Recovery of Volatile Solvents."
5. W. J. Kelly, "The Determination of True Free and True Combined Sulphur in Vulcanized Rubber."
6. S. W. Epstein, "Analytical Determination of the Coefficient of Vulcanization."
7. G. D. Kratz and A. H. Flower, "Small Amounts of Magnesia and Certain Organic Substances as Accelerators."
8. W. K. Lewis, "Obscuring Power of Pigments."
9. C. O. North, "The Effect of Compounding Ingredients on the Physical Properties of Rubber." Lantern.
10. Symposium on the testing of pigments. Led by W. W. Evans.

Attention is called to the symposium on "Colloid Chemistry" by the Physical and Inorganic Division of the American Chemical Society. Arrangements will be made, if possible, so that both these papers and those of the Rubber Division will be given at such a time as to not conflict with each other.

Goodyear Plant for Brazil

After two years' negotiations, interrupted by the war, the Goodyear Tire and Rubber Co. has completed arrangements for the construction of a large, modern rubber factory near Rio de Janeiro, Brazil, to meet its South American demand, it was announced recently.

Construction of the factory, which will have a capacity of 5000 tires daily and require the employment of about 3000 persons, has already started on ground of 100 acres. Mechanical goods as well as pneumatic and solid tires will be manufactured at the new factory.

Interest has been aroused in the project and classes have already been started in which languages and customs of countries in South America will be taught to present Goodyear employes who have indicated a desire to live in the Brazilian capital.

Publicity is being given the factory and employes who wish to move to South America are being told to submit their names to factory managers to enroll in the classes.

Advertising Managers Organize

More than fifty representative advertising managers of the automotive industries attended a meeting held at the Hotel Commodore, New York, March 26, under the auspices of the Motor and Accessory Manufacturers' Association, and approved plans for the organization of an Advertising Managers' Council, as a central clearing house to handle constructive co-operative work on vital problems of mutual interest. M. L. Heminway, general manager of the association, who issued the call for the meeting, presided.

The following executive committee was appointed to formulate definite plans and policies for the council: E. C. Tibbitts, advertising manager B. F. Goodrich Rubber Co., Akron, Ohio (Chairman); James J. Buzzell, advertising manager Motor Bearings Division, Hyatt Roller Bearing Co., Detroit, Mich. (Vice-Chairman); James J. McQuiston, advertising manager Westinghouse Electric and Manufacturing Company, New York City; E. W. Krombach, advertising manager Aluminum Manufacturers, Inc., Cleveland, Ohio; F. C. Baldwin, advertising manager Willard Storage Battery Co., Cleveland, Ohio.

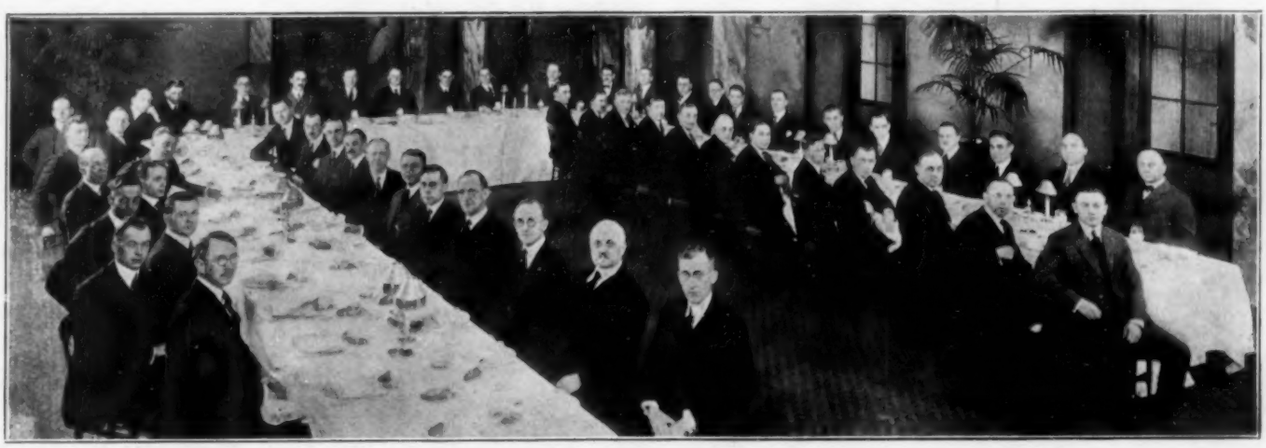
At the luncheon which preceded the executive session of the conference, addresses were delivered by Richard H. Lee, special counsel of the Associated Advertising Clubs of the World and David Beecroft, directing editor Class Journal publications. Mr. Lee described the work of the Vigilance Commission of the Associated Advertising Clubs, and urged the advertising managers and directors present to lend their full support to the movement for truth in advertising. This, he said, would strengthen and safeguard reader-confidence, which he described as the keystone of the advertising structure. The importance of co-operative thought and activity in facing the new industrial problems, especially in the field of advertising and labor relationship, was emphasized by Mr. Beecroft.

E. C. Tibbitts, advertising manager B. F. Goodrich Rubber Co., Akron, Ohio, pleaded for a broader vision by advertising men in meeting the complex and crucial problems facing America. It was the special privilege and duty of advertising men, he said, to render patriotic service of the most vital importance by supporting the various movements for Americanization, greater production, and better roads and transportation. He urged the advertising managers to think not only of their own particular problems in marketing and selling their products, but also to enlist their talents and their services in the interest of the larger national movements.

In the executive session, the why's and wherefore's of the proposed Advertising Managers' Council were presented by several of the speakers and discussed in a frank interchange of ideas and experience. The give and take of the various view points clearly developed the need for a central advertising body, which should function under the auspices of the Motor and Accessory Manufacturers' Association as the parent body.

Several suggestions were advanced as to the subjects of most immediate importance which should come before the Council. These covered a wide range, and included the general as well as technical problems in connection with advertising and publicity. The executive committee will summarize the suggestions and in addition obtain the views of the industry generally, in mapping out the program for the Council's work.

It was agreed that the Council should not attempt to duplicate the general advertising work of the national organization, but to confine its activities to problems directly related to the automotive industry, which are of importance to the members of the Motor and Accessory Manufacturers' Association. No elaborate organization is planned. It is hoped to make the Council a simple and workable body, which will achieve practical results for the benefit of all concerned. The executive committee of the Council will hold its first meeting on April 8 at Cleveland. Further plans for the Council's work and arrangements for future meetings will be announced at that time.



DINNER OF ADVERTISING MANAGERS' COUNCIL OF MOTOR AND ACCESSORY MANUFACTURERS ASSOCIATION

Firestone to Build in Los Angeles

President H. S. Firestone of the Firestone Tire & Rubber Co. announced in a recent interview that his company would build a branch factory in Los Angeles, Cal.

Building operations will not start for some time, however, he said, because he believes the country is expanding too fast, especially in building operations.

It is understood that the Firestone already has purchased a site, but the firm refused to confirm this. Mr. Firestone said that because tires could be built more cheaply there than in any other part of the country, other rubber concerns of Akron and the United States would be compelled to establish branch factories in California.

Mr. Firestone made the initial announcement of the proposed new plant in a speech before a banquet of business men recently at the Chamber of Commerce. "Los Angeles must correct bad housing conditions and bring rents, which have been raised by profiteers, down before the Firestone comes," he said.

Sterling Declares Dividend

At the regular meeting of the board of directors of the Sterling Tire Corporation, held on March 26, an initial dividend from the date of issue at the rate of eight per cent per annum was declared on the cumulative sinking fund series B preferred stock of the corporation. Par value of stock is $100, preferred as to assets and dividends. Retireable at $110, and accrued dividends. Beginning 1921, ten per cent of the net profits (after preferred dividends) will be paid into a sinking fund for retirement.

At the same meeting the regular quarterly dividend of one and three-quarters per cent was declared on the seven per cent preferred stock of the Sterling Tire Corporation, and a dividend of one per cent was declared on the common stock for the quarterly period ending March 31.

The prospects of the Sterling Tire Corporation were never so good as at present. Sales during the first three months of 1920 have been running along at a figure more than double that of 1919.

Hood Business for 1919

Net sales of the Hood Rubber Co., of Watertown, Mass., for 1919, including those of the Hood Tire Co. show an increase over the preceding year. The total for 1919 amounted to $22,969,664 while the 1918 total amounted to $22,341,081. Tire business for 1919 was $6,593,984 as against $4,834,925 for 1918. The surplus account was increased $197,248 to $2,863,953 as compared with $353,314 surplus for 1918.

The company is in excellent shape for 1920 business. Net quick assets have increased from approximately $5,400,000 of a year ago to $6,252,000 at the present time. The capacity of the plant has been increased and the number of employes has grown from 7,900 to 9,000 during the past year.

Overman to Increase Stock

At a recent special meeting of the board of directors of the Overman Cushion Tire Company, New York, it was decided to hold a special meeting of the stockholders on April 15 to vote upon a proposition to increase the capital stock of the company from $250,000 to $550,000. The latter would be composed of 5,500 shares of the par value of $100 each, of which 1,500 shares would be common stock and 4,000 shares preferred.

United States Annual Report

The annual report of the United States Rubber Company for the fiscal year ended December 31, 1919, recently submitted to the stockholders of the company show that the net sales of the company during 1919 totaled $225,589,465, an increase of more than $10,000,000 over the sales for the previous year, despite the fact that the latter included a large volume of business incident to the war. The war business in 1918 was $25,000,000 greater than in 1919.

The continued report of the volume of business and profits for 1920 is as follows:

The Net Income *before* interest, but *after* making provision for depreciation of plants and adequate reserves for Federal, Canadian and British taxes on income and profits amounted to..		$21,396,099
The *Net* interest charges amounted to		3,665,862
Thus leaving net profits for the year		$17,730,237
The Dividends on United States Rubber Company Preferred Stocks amounted to.	$5,041,476	
The Dividends on Minority Stock of Subsidiary Companies amounted to	19,567	
Making a total of.....		5,061,043
Leaving Surplus for the year applicable to the Common Stock..		$12,669,194
From which there was deducted:		
Dividend on Common Stock paid October 31, 1919	$720,000	
Reserve for Dividend on Common Stock payable January 31, 1920	1,378,576	
Making a total for Common Stock Dividends		2,098,576
Leaving a balance for the year carried to Surplus Account....		$10,570,618
The Surplus at the beginning of the year amounted to $41,848,051		
From which there was deducted for adjustments made during the year	108,506	
Thus leaving		41,739,545
Making the Surplus as of December 31, 1919.....		$52,310,163

The report goes on to state that in October, 1919, the directors placed the common stock of the company upon an eight per cent dividend basis, believing that they were amply warranted in so doing, and that the earnings of the year, together with the future outlook of business, would serve to indicate that such action was conservative. On January 8, 1920, the board of directors voted to distribute $9,000,000 of the surplus of the company, as a stock dividend of twelve and a half percent, to holders of the common stock of the company of record February 5, 1920.

The report also states that pursuant to the requirements of the indenture securing the company's first and refunding mortgage five percent gold bonds, $690,000 being one percent of the total amount of bonds issued, was paid to the sinking fund trustees on January 1, 1919. The call for tenders resulted in the purchase of bonds to the par value of $793,000, and these bonds have been retired and the bonded indebtedness reduced by a like amount.

The sales of the company so far this year show a substantial increase over the previous year. It is expected that with the completion of new construction now in process, notably in the tire division, the sales and profits for 1920 should be larger than they were in 1919.

The consolidated general balance sheet, December 31, 1919, follows:

Cash	$20,037,646.20
Accounts Receivable	40,770,427.90
Notes and Loans Receivable..	1,377,339.05
United States Liberty Bonds and Victory Notes and Canadian Victory Bonds.	3,479,902.15
Notes Receivable of Employees given for purchase of Capital Stock, secured by such stock to the par value of $9,709,900	8,576,043.41
Manufactured Goods and Material	87,633,699.00
Total Current Assets.....	161,875,057.71
Securities owned and held in the Insurance Fund.....	2,331,778.75
Securities owned, including Stock of U. S. Rubber Company held by Subsidiary Companies	5,522,317.19
Plants, Properties and Investments, including Rubber Plantations	148,610,520.27
Prepaid and Deferred Assets..	1,194,530.09
Total Assets.....	$319,534,204.01

Liabilities, Reserves and Capital			
Accounts Payable and Accrued Liabilities.....		$22,902,570.50	
Acceptances Payable for Importation of Crude Rubber.....		1,430,148.20	
Notes and Loans Payable.....		0.00	
Total Current Liabilities.....			$24,332,718.70
U. S. R. Co. First & Refunding Mortgage 5% Gold Bonds, due 1947.....	$68,207,000.00		
Less Treasury Bonds deposited as Security for U. S. R. Co. 5-year 7% Secured Gold Notes, due Dec. 1, 1923.....	9,000,000.00	59,207,000.00	
U. S. R. Co. 5-year 7% Secured Gold Notes, due Dec. 1, 1923.....		6,000,000.00	
Canadian Cons. Rubber Co., Ltd., 6% Gold Bonds, due 1946		2,600,000.00	
			67,807,000.00
Total liabilities.....			$92,139,718.70
General Reserves		13,021,666.29	
Insurance Fund Reserve.....	1,825,138.51		
Employees Accident Fund Reserve.....	776,370.21	2,601,508.72	
Reserve for Depreciation of Property and Plants.....		14,812,254.16	
Reserve for Dividend on Preferred Stock, payable January 31, 1920		1,260,442.00	
Reserve for Dividend on Common Stock payable January 31, 1920		1,378,576.00	
Total Reserves.....			33,074,447.17
Capital Stock—First Preferred.....		63,022,100.00	
Capital Stock—Common		72,000,000.00	
Minority—Canadian Cons. Rubber Co., Ltd., Stock.....		278,500.00	
Total Capital Stock.....		135,300,600.00	
Fixed Surpluses—Sub. Co.'s.....	6,709,275.22		
Surplus	52,310,162.92	59,019,438.14	
Total Capital Stock and Surpluses.....			194,320,038.14

MARKETS

Manufactured Rubber Goods

NEW YORK, April 5, 1920.

Considerable difficulty in obtaining shipments of rubber goods from the factories is being experienced at the present time. The recent storms in all parts of the country are largely responsible for this condition of affairs and the continued shortage of freight cars, coupled with inability to expedite shipments of goods when loaded, are still giving much trouble to shippers and receivers of rubber goods.

There have been no recent developments in the market which would seem to justify lower prices on rubber goods. Producing costs are kept at a high level by the present high costs of labor and raw materials. Manufacturers are endeavoring to speed up production, and are succeeding to some extent—the fact remains that the workmen are not turning out the same quantity of work as they did in pre-war days.

The market for crude material is kept in an unsettled position as exchange rates fluctuate, but the market has not gained in strength to any great extent during the past few weeks. The rubber market, on the whole, has been more stable during the past few years than the markets on any other materials entering into the manufacture of rubber goods.

EXPORTS

Buying of manufactured rubber goods for shipment abroad continues to be held down to the bare requirements of foreign users. The money rates are still very unfavorable to the foreign buyer, and no sustained improvement in the exchange market has taken place. This is making it extremely difficult for foreign operators to secure credits for the purchase of American goods of any description.

BOOTS AND SHOES

Manufacturers will soon be putting their fall lines of rubbers on the market, and a strong demand is anticipated in view of the fact that spot stocks were practically eliminated during the recent series of blizzards. New York retailers alone sold 2,000,000 pairs within one month of the stormy weather, and it is believed that other cities have likewise cleaned up supplies.

At the present time there is an increasing demand for summer lines of rubber-soled footwear, and jobbers are stocking up for the coming season. Spot shoes of all descriptions are being sought despite the higher prices brought about this year by the increased producing costs.

Rubber heels and rubber and composition soles are going better with the advent of spring weather, and the demand is again taxing the capacity of leading manufacturers. New lines are making their appearance on the market from time to time. There is some export interest being shown in these goods, due to the shortage of sole leather abroad and the high prices prevailing on such stock. Present exchange rates, however, do not permit of the development of much business along these lines.

AUTOMOBILE TIRES

Practically all of the leading tire companies have fallen into line with increased tire prices. The price advance this time was not heralded with the usual large advertisements in the daily newspapers announcing the jump, but figures compiled by tire dealers show the advance to have averaged from 18 to 19 per cent on the general list of tires. Some of the advances were larger, but present quoted prices of different manufacturers average practically the same on the various sizes and constructions of tires.

Reports from various sections of the country tell of ever increasing prosperity in the tire manufacturing industry. The smaller companies have been infused with new life by the advance in prices, which enables them to show a better profit on their goods. Many of the smaller companies are making preparations for large increases in their producing capacity and many plan to double their present output.

MECHANICAL GOODS

Continued rising costs in the fabric materials used in the manufacture of hose and other mechanical goods are keeping the market in a strong condition, and prices are showing a tendency to advance. The usual spring buying of hose is reported, with distributors taking fair stocks of garden hose. Labor troubles are keeping the market for belting in a quiet condition, but in spite of this manufacturers report enough orders to keep them busy.

Cotton, Yarns and Fabrics

NEW YORK, April 5, 1920.

The undercurrent in the cotton market has been bullish during the past fortnight, and cotton futures have advanced rapidly, March contracts having set a new high selling record of 43 cents per pound. Cotton for delivery during the still distant months, however, has not advanced so sensationally and is obtainable at fully 9 cents per pound under the spot price for October delivery.

The trade, however, is expecting to see the market on futures go still higher when the real shortage of staple cotton in the South is realized.

Weather conditions are now dominating the market for futures, as recent heavy rains in the principal growing districts of the cotton belt have held up planting operations to a considerable extent. The West has not suffered from the rain, but cold weather in that section has had the same damaging effect upon operations.

Despite the bearish arguments of market interests, it appears that the market for the remainder of the season will be a strong one, although there is always the possibility of a bad break which may change sentiment overnight. Exports continue to be heavy and have already passed the 5,000,000 bale mark with four months of the old cotton year yet to go. The undoubted strength of the spot markets, the rising market in sterling exchange as the result of the heavy shipments of gold to New York from Great Britain, and the probability that the American Cotton Association will be able to line up its members for 45 cent cotton all point to a strong market for the remainder of the year.

SEA ISLAND COTTON

Growers in the Sea Island district are waging what appears to be a losing fight against the boll weevil this year, and latest estimates place the probable size of the 1920 crop at from 25,000 to 30,000 bales. Federal officials are aiding the growers in their battle with the insect pest, but it appears as though the Sea Island cotton industry is doomed. Due to the length of time required before the plants reach maturity in the Sea Island district, the bugs have ample opportunity to get in their work and clean up the crop. Thus far there has been little inclination on the part of the growers to switch to the growing of the Meade long staple cotton developed by the Department of Agriculture.

EGYPTIAN COTTON

Consumption of Egyptian cotton in the United States this year will break all records, according to reports from spinning districts. The increased demand has been brought about almost entirely by the heavy increase in the manufacture of tire fabrics, manufacturers using larger quantities of the Egyptian staple because Sea Island and other American long staple cotton are not available in sufficient quantity.

Imports of Egyptian cotton at Boston continue to be heavy, approximately 150,000 bales having been received there since January 1 of this year. Tire fabric spinners are taking the staple in increasing quantities, despite the high prices brought about by the bulling of the market in Alexandria by speculative interests.

AMERICAN-EGYPTIAN COTTON

Spinners of tire yarns are in the market for all of the domestic Egyptian cotton available, and the market is showing a strong tone, with prices varying with different sellers. The industry is being steadily expanded in the Southwest, but it will be some years before the domestic cotton growers will be able to produce in sufficient quantities to make American spinners independent of the Egyptian and Peruvian cotton markets.

TIRE FABRICS

Production of tire fabrics is being steadily expanded, and there is a buyer for every yard of fabric the spinners are able to produce. Prices are nominal in most cases, selling prices varying with different sellers, and being determined by the cotton cost and labor cost of the spinners. Consumers of the fabrics are willing to pay almost any price to get supplies at the present time. Manufacturers are booked up for months ahead on contract work, and are not seeking any spot business on their fabrics. No open market quotations are available, but the quotations give a fair idea of present spot values of the various grades of tire fabrics.

HOSE AND BELTING FABRICS

There is a strong tone featuring the market for ducks of all descriptions, and high producing costs promise to keep the market steady for some time to come. Consumers have been able to get some supplies at fairly satisfactory prices in the sales of surplus property conducted by the Government, through the surplus property division of the War Department, the goods being sold through the sealed bid system.

DRILLS, SHEETINGS AND OSNABURGS

There is a quiet market for drills and sheetings reported on spot, a good part of the business still being done by second hands. The mills at Fall River are getting more business, however, and the market is firmly held in first hands. The strike of dock workers on the coastwise lines is holding up deliveries from New England to a considerable extent, and the railroads are unable to relieve this condition to any appreciable extent, due to lack of freight cars. Should this condition continue for any length of time, it is said in the trade, spot goods will be bringing a premium over future shipment goods. Price changes during the period under review have been negligible.

BURLAPS

There is a nominal tone ruling in the market, and asking prices vary with different sellers. Buyers are not active in the market, and are taking stocks only as needed. The market for 8 ounces 40 inch stock is nominally held at 9.40 to 9.75 cents per yard, but sales have been made down to 9.25, and offerings are reported even below this figure. Heavyweight stock is nominally held.

TIRE FABRICS

17¼-ounce Sea Island, combed.	sq. yd.	2.25@2.40
17¼-ounce Egyptian, combed		2.00@2.15
17¼-ounce Egyptian, carded		1.80@1.90
17¼-ounce Peelers, carded		1.25@1.30
17¼-ounce Peelers, combed		2.25@2.35

DUCKS

Belting (pound basis)	lb.	.74½@	.75
Hose (pound basis)		.74½@	.75
Enameling		.88 @	..
Shoe Ducks		.90 @	.92
Single filing	yd.	.34 @	.36
Double filing		.38½@	.40

DRILLS

37-inch 2.35-yard	yd.	.32½@	.33
37-inch 2.75-yard		.29 @	..
37-inch 3.00-yard		.28 @	..
37-inch 3.25-yard		.27½@	..
37-inch 3.50-yard		.25½@	.26
37-inch 3.95-yard		.24 @	..
37-inch 2.00-yard Southern		Nominal	
37-inch 2.00-yard Northern		Nominal	
40-inch 2.40-yard Southern		Nominal	
40-inch 2.40-yard Northern		Nominal	
52-inch 1.90-yard Southern		Nominal	
52-inch 1.90-yard Northern		Nominal	

SHEETINGS

40-inch 2.35-yard	yd.	....@	.....
40-inch 2.50 yard		.35 @	..
40-inch 2.85-yard		.32 @	.33
40-inch 3.00-yard		....@	..
40-inch 3.25-yard		....@	..
40-inch 3.75-yard		.27 @	.27½
40-inch 3.60-yard		.28½@	.29½
40-inch 4.25-yard		.24 @	.25

Note.—**In view of the unsettled conditions prevailing in the market at the present time, the prices quoted above are more or less nominal, and are not guaranteed.**

BURLAPS

(Carload lots)

	Cents Per Yard	
7 -ounce 40-inch	11.00@	....
7½-ounce 40-inch	....@	....
7½-ounce 45-inch	....@	....
8 -ounce 36-inch	....@	....
8 -ounce 40-inch	9.40@	9.75
8½-ounce 40-inch	11.50@	....
10 -ounce 36-inch	....@	....
10 -ounce 40-inch	14.50@	....
10 -ounce 45-inch	Nominal	
10½-ounce 40-inch	14.75@	....

Chemicals and Compounding Materials

NEW YORK, APRIL 5, 1920.

There is a steady tone featuring the market for chemicals and compounding materials, and the market continues to display a strong undertone on spot. In some lines, such as pigments and dry colors, the trade is of the opinion that the price peak has been reached for the present season, and further increases are not expected in the immediate future.

BENZOL

Demand for benzol continues active, and producers are somewhat behind on their contract deliveries, and are offering for prompt shipment only in very small lots at 25 to 28 cents per gallon. Some spot benzol in second hands has been sold at from 30 to 35 cents per gallon. Producers are said to be contemplating an advance in their asking price, but no such action has yet been reported.

LITHARGE

The market for litharge holds quotably unchanged on the basis of 11¾ @ 12¼ cents per pound for American powdered in casks. There is a steady tone ruling in the market, and producers do not expect any price changes until quotations on pig lead, which is at present selling at 9 cents per pound in the outside market, are altered.

LITHOPONE

The market is quoted somewhat stronger, with goods in barrels held at 8 cents per pound and in bags at 7.87½ cents per pound. Producers are still sold up for months in advance, and are not able to offer any goods for prompt shipment in any quantities.

WHITING

The spot market for whiting is showing a strong tone, light imports of English chalk keeping production down to a minimum. The market is strongly held on the spot on the basis of $1.15 to $1.20 per cwt. for commercial, $1.20 @ $1.25 for gilder's boiled, $1.50 @ $1.75 for American paris white, and $1.75 @ $2.50 for English cliffstone.

BARYTES

Producers have withdrawn contract prices on barytes, and are accepting business only on the basis of prices ruling on date of shipment. While production has been increased during the past few months, the shortage in freight cars is holding up shipments at the mills and is forcing producers to pile up large reserves awaiting shipment. The last quoted contract prices were as follows: $34.00 @ $36.00 per ton for white domestic, and $23.00 @ $25.00 per ton for both Southern and Western, this price being f. o. b. mills.

ZINC OXIDE

There is an active demand for zinc oxide from the tire industry, and producers are beginning to fall behind somewhat in their deliveries. The market is showing a steady tone on spot, with quoted prices unchanged by leading factors in the market. Latest reports from Western producing sections report a strong market ruling, with producers working at capacity to handle the business offered. The car shortage is also acting as a great handicap to producers of zinc oxide in getting out their shipments to consumers.

DRY COLORS

A stronger market on vermilion reds is reported, prices having advanced 10 cents per pound to $1.60 per pound. There is a strong tone ruling throughout the entire list of dry colors, but it is not thought at this time that prices will show any further advances within the near future. Producers are doing all in their power to stabilize the market at the present time, and plan to hold the market on the present basis for some time to come, unless some unforseen development should force changes either way.

Current Prices for Chemicals, Fillers, Colors, etc.

Acetone, carlots	lb.	.13½@	.14
smaller lots	lb.	.15 @	.16
Acetanilid, C. P., bbls.	lb.	.60 @	.65
Acids, Acetic, 56%	cwt.	6.00 @	6.50
Carbolic, C. P.	lb.	.12 @	.20
Muriatic, 20 deg.	cwt.	1.75 @	2.00
Muriatic, 22 deg.	cwt.	2.50 @	2.75
Nitric, 42 deg.	cwt.	7.00 @	7.50
Nitric, 40 deg.	cwt.	6.75 @	7.25
Sulphuric, 60 deg. carlots	tons.	18.00 @	19.00
Sulphuric, 60 deg. carboys		— @	—
Tartaric, crystals	lb.	.69½@	—
Aluminum Silicate		— @	—
Aniline oil, bulk basis,			
Contract		— @	—
Imported		Nominal	
Domestic		.32 @	.35
Antimony	lb.	.11¾@	.12
Oxide	lb.	.13½@	.14
Sulphuret, red	lb.	.25 @	.30
Sulphuret, golden	lb.	.30 @	.35
Sulphuret, crimson	lb.	.45 @	.50
Alcohol, denatured, 190 proof		.98 @	1.02
Wood, 95%		— @	—
Ethyl, 190 proof		5.15 @	5.25
Aldehyde Ammonia		Nominal	
Ammonia		— @	—
Ammonium Carbonate, domestic	lb.	.16 @	.16½
Amyl Acetate	gal.	4.10 @	4.25
Anthracene, 80%		.95 @	1.00
Anthroquinine, 95%		4.00 @	4.25
Asbestine		— @	—
Asphaltum, Egyptian	lb.	.30 @	—
Domestic	ton	.30 @	.40
Barium, dust		— @	—
Sulphide	lb.	.07¼@	.07½
Barytes, prime white imported	ton	Nominal	
white, domestic	ton	34.00 @	36.00
off color, domestic	lb.	— @	—
Southern, f.o.b. mills		23.00 @	25.00
Western, f.o.b. mills		23.00 @	25.00
Beeswax		.30 @	.65
Benzidine Base	lb.	1.25 @	1.30
Benzol, 90%	gal.	.25 @	.28
Benzol, pure bulk, 100		.27 @	.30
Blanc Fixe, dry, bbls.	lb.	.05 @	—
Burgundy Pitch, dom.	lb.	.08 @	.10
Foreign		.60 @	.65
Blacks, Drop	lb.	.05½@	.15
Ivory	lb.	.16 @	.30
Carbon, gas, cases	lb.	.12 @	.25
Lampblack R. M.	lb.	.15 @	.45
Mineral blacks	ton	35.00 @	45.00
Blues, Prussian		.90 @	—
Soluble	lb.	.90 @	—
Ultramarine	lb.	.15 @	.50
Browns,			
Umber, Turkey, burnt, powdered	lb.	.05¾@	.07

American, burnt....lb.	.04½	@	.06
Cadmium sulphide, yellow.lb.	1.75	@	1.80
Carbon Disulphide, bulk.lb.	—	@	—
Bisulphide .....lb.	.07	@	.07½
Casein, C. P.....lb.	.35	@	.36
Castor Oil .....lb.	.19	@	.22
Caustic Soda, 76%....cwt.	6.75	@	7.00
Chalk, precipitated, extra light .....lb.	.04½	@	.05
heavy .....lb.	.03½	@	.04
China clay, domestic...ton	8.50	@	20.00
imported .....ton	18.00	@	23.50
China Wood Oil, bbls...lb.	.24¾	@	.25
F.o.b. Pacific Coast..	.22½	@	.23
Chloroform, U. S. P.....	.30	@	—
Coal Tar Pitch.....	—	@	—
Cottonseed Oil, crude, f.o.b. mills .....lb	.17½	@	—
Prime summer yellow, bbls.	19.25	@	19.50
Dimethylaniline .....lb.	Nominal		
Elateron	—	@	—
Formaldehyde, spot....lb.	.58	@	.65
Fullers Earth, powd., 100 lbs.	1.50	@	2.00
Fossil flour .....lb	.03¾	@	.05
Genasco Mineral Rubber..	—	@	—
Gilsonite .....ton	55.00	@	—
Glue, extra white.....lb.	.35	@	.40
medium .....lb.	.30	@	.35
low grade	.20	@	.25
foot stock	.13	@	.18
brown foots	.12	@	.16
common bone	.11	@	.15
Glycerine, C. P. (drums).lb.	.23½	@	.24
cans	.25½	@	.26
Graphite, flake (bbl.)...lb.	.14	@	.25
powdered (bbl.)....lb.	.05	@	.10
Green, chrome, R. M....lb.	.39	@	.60
Ground glass (fine).....lb	.03½	@	.04
Hexamethylene .....lb	Nominal		
Infusorial earth, powd'd.lb.	.02	@	.035
bolted .....lb.	.035	@	—
Iron oxide, red, reduced grades .....lb.	.13	@	.15
red, pure, bright...lb.	—	@	—
Hexamethyenetetramine.lb.	1.93	@	2.50
Koolin	—	@	—
Lime, hydrated	—	@	—
Lead, red, dry (casks)..lb.	.12¼	@	.12½
sublimed .....lb.	—	@	—
white, basic carb...lb.	.10½	@	.11
white, basic sulp...lb.	.09¾	@	.10¼
Lime flour.....lb.	.01¾	@	.02
Litharge (casks) .....lb.	.11¾	@	.12¼
English .....lb.	—	@	—
Lithopone, domestic, bbls.lb	.08	@	—
in bags .....lb.	.07⅞	@	—
Magnesia, carbonate....lb.	.17	@	.21
calcined light .....lb.	.60	@	.65
Magnesite, calcined, pwd. ton	50.00	@	65.00
Magnesia Oxide, heavy....	—	@	—
Light	—	@	—
Extra light.....	—	@	—
Napthalene	—	@	—
Nitrobenzol	.13½	@	.15
Naphtha, motor gasoline, (steel bbls.)....gal.	.28½	@	—
68 @ 70 degrees (steel bbls.) .....gal.	.35½	@	—
70 @ 72 degrees (steel bbls.) .....gal.	.36½	@	—
73 @ 76 degrees (steel bbls.) .....gal.	.38½	@	—
machine (steel bbls.)gal.	.47½	@	—
Oil corn, crude factory.cwt.	17.81	@	—
corn, ref. (bbls.).cwt.	20.56	@	—
linseed (bbls.)	1.87	@	—
in carloads, spot.....	1.84	@	—
tank cars	1.77	@	—
M. R. X.....		@	—
Oil palm, Lagos.....lb.	.16	@	—
Niger .....lb.	.14½	@	—
pine, yellow .....gal.	1.21	@	—
distilled .....gal.	1.21	@	—
rapeseed, refined..gal.	1.75	@	—
rapeseed, blown...gal.	1.80	@	—
rosin, first rectified.gal.	.90	@	—
second run	.92	@	—
tar (commercial)..gal.	.36	@	.38
Oleum Acid, 20%.....ton	29.00	@	35.00
Orange mineral, Amer..lb	.15½	@	.16½
imported .....lb.	—	@	—
Ozokerite	.35	@	.36
Paraphenylenediamine ..lb.	2.50	@	3.00
Petrolatum, bbls., amber.lb.	.06	@	.07
pale yellow .....lb.	.06½	@	.07
Paranitrosodimethlyanaline	—	@	—
Paraffin, refined, 118@120 m. p.....	.10	@	—
127@129 m. p.....	.11	@	—
137@140 m. p.....	.12½	@	—
Phenol	—	@	—
Pumis	.05	@	.10
Pine tar kiln.....bbl.	14.50	@	—
Pitch .....bbl	8.50	@	—
Plaster of paris.....bbl	2.00	@	3.00
Red Tuscan .....lb	.22	@	.30
red (American) ...lb.	.14	@	.16
Indian (English) ...lb.	.14	@	.16
Standard .....lb.	—	@	—
Rosin (common to good) 280 lbs .....bbl.	18.00	@	—
Rotten stone, powdered lb	.02½	@	.04½
Rubber substitute, black.lb.	.13	@	.17
white .....lb	.15	@	.24
brown .....lb.	.20	@	.25
Rosin Oil, first rectified...	.90	@	—
Second rectified.....	.92	@	—
Third rectified.....	1.11	@	—
Fourth rectified.....	1.15	@	—
Soda ash, light, 58%..cwt.	3.50	@	3.60
Sodium Nitrite	—	@	—
Solvent Naptha, crude, hvy	.18	@	.20
Soya Bean Oil, bbls....lb.	.22	@	—
Sellers tanks, f.o.b. Coast.	.16¼	@	—
Stearic Acid, single.....	.22½	@	—
Sulphur Chloride	—	@	—
Shellac, fine orange.....lb.	—	@	—
T. N. .....lb.	1.50	@	1.55
Bleached ordinary...lb.	1.25	@	1.30
Bleached bonedry...lb.	1.55	@	1.60
Silex (silica).....ton	22.00	@	40.00
Soapstone, powdered...ton	12.00	@	17.50
Starch, corn, powd....cwt.	5.97	@	6.23
pearl	4.97	@	5.19
Jap, potato.duty pd, lb.	.09½	@	—
Sulphur, crude .....ton.	—	@	—
100 pounds	—	@	—
roll	3.20	@	—
commercial superfine..	2.00	@	2.25
Talc, American.....ton	20.00	@	40.00
French .....ton	—	@	—
Thiocarbanilid	—	@	—
Toluol, pure, in drums..gal.	.28	@	.32
commercial	.30	@	.32
Tripolite earth .....lb.	.01⅛	@	—
Turpentine, pure gum—spirit .....gal.	2.50	@	—
wood .....gal.	1.60	@	—
Venice, artificial .....gal.	.15	@	.16
true	4.50	@	4.75
Vermilion, English.....lb.	1.60	@	—
American	.25	@	.30
Vorite	—	@	—
Wax, beeswax, crude yel.lb.	.34½	@	.35
refined	.40	@	.40½
Bayberry	.39	@	.40
ceresin, white .....lb.	.15	@	.16
yellow	.14	@	.15
Whiting, commercial..cwt.	1.15	@	1.20
Gilders Bolted	1.20	@	1.25
Paris white, Amer. cwt.	1.50	@	1.75
English cliffstone.cwt.	1.75	@	2.50
Xylol (gal.) pure.....	.40	@	—
Commercial	.35	@	.40
Zinc Oxide, French process, red seal	.11½	@	.11¾
green seal	.12½	@	.12¾
white seal	.13½	@	.13¾
Leaded Grades—			
Commercial, lead free...	.08¾	@	.10½
5% lead sulphate....	.09	@	.09½
10% lead sulphate....	.08¾	@	.09¼
20% lead sulphate....	.08½	@	.09
35% lead sulphate....	.08¼	@	.09⅛
Zinc Sulphide	—	@	—

Scrap Rubber

NEW YORK, April 5, 1920.

Heavy arrivals of delayed shipments of the various grades of scrap rubber have resulted in a weaker market all around, and prices have been quoted lower under selling pressure. Receipts of arctics and boots and shoes have been particularly large, the market being flooded with rubbers worn out during the recent storms.

	Cents per Pound.		
Boots and shoes.....	7.50	@	7.75
Arctics, trimmed	5.75	@	6.00
Arctics, untrimmed	5.00	@	....
Tires—Automobile	3.25	@	3.50
Bicycles, pneumatic	2.50	@	3.00
Mixed hose	1.00	@	1.75
Air brake	....	@	....
Inner tubes, No. 1.....	15.00	@	18.00
Inner tubes, No. 2.....	9.00	@	10.00
Red tubes	9.25	@	9.50

Crude Rubber

NEW YORK, April 5, 1920.

The market has been a quiet one during the past few days, a holiday spirit being in evidence throughout the entire market. Little change in general condition has been noted during the past fortnight, the market holding about steady under quiet buying. Ribbed smoked Ceylon sheets are a trifle easier at 46 cents per pound, while plain smoked sheets are lower at 46½ cents per pound. Other varieties hold quotably unchanged.

Consumers have not been active in the market and are buying only in a hand to mouth manner when forced into the market for supplies to round out stocks held at the factories. With sterling exchange showing more firmness, however, members of the trade are showing a more optimistic spirit, and it is believed that selling pressure will be lessened as the improvement in exchange rates continues.

	Cents per Pound.		
Para—Up-river fine	.41½	@	.42
Up-river medium	.40½	@	—
Up-river coarse	.31½	@	—
Caucho ball	.33	@	—
Islands fine	.42	@	—
Islands coarse	.21½	@	—
Cameta	.20¾	@	—
Ceylon—Smoked sheets, ribbed.	.46	@	—
Smoked sheets, plain.....	.45	@	—
Madeira, fine	.44	@	—
Knapsack	—	@	—
First latex pale crepe.....	.46½	@	—
Amber crepe	Nominal		
Clean brown crepe.....	—	@	—
Rio Nunez string.....	—	@	—
Palembang	.13	@	—
African	.33	@	—
Prime Surinam sheets.....	—	@	—
Centrals—Corinto prime.....	.32	@	.32½
Esmeralda, prime	.32	@	.32½
*Balata, sheets	—	@	—
Guayule, wet	.27	@	—
Balata, block, Panama.....	.57	@	—

* Nominal.

ANNOUNCEMENT
In addition to the buying and selling of scrap rubber we are now handling—
PLANTATION RUBBER
S. Birkenstein & Sons announce the addition of PLANTATION RUBBER in connection with the handling of Scrap Rubber in which we have for years been prominent in the American trade. We are prepared to furnish PLANTATION RUBBER for immediate deliveries in three grades—First Latex, Light Brown Crepe and Prime Smoked Sheet.
Four strategically located offices enable us to give you delivery on schedule with qualities always guaranteed. Write us for prices.
S. Birkenstein & Sons, Inc.
377 W. Ontario St., Chicago, Ill.
134-6 N. Front St., Philadelphia, Pa.
Times Building, New York City
Temple Court Bldg. Minneapolis, Minn.
The House of Birkenstein

American Rubber Patents

ISSUED MARCH 16, 1920.

1,333,779—To Ward W. Robinson, East Liverpool, Ohio. Automobile tire.

1,333,882—To John Sumner, Leyland, England, assignor to Wood-Milne, Ltd., Manchester, England. Apparatus for trimming heel-pads, rubber soles and tips for boots and shoes, and other rubber articles.

1,333,915—To Stewart E. Hall, Akron, Ohio, assignor one-half to William G. Moser, Akron, Ohio. Tire and rim.

1,333,927—To Edwin C. McGraw, East Palestine, Ohio, assignor to the McGraw Tire & Rubber Co., East Palestine, Ohio. Tire-making machine.

1,333,928—To William C. Martin, Chicago, Ill., assignor to Morand Bros.-Martin Cushion Wheel Co., Chicago, Ill. Cushion-wheel construction.

1,333,929—To William C. Martin, Chicago, Ill., assignor to Morand Bros.-Martin Cushion Wheel Co., Chicago, Ill. Cushion-wheel construction.

1,333,983—To Frank Kish, Elyria, Ohio. Resilient shoe-heel lift.

1,334,060—To John M. Weiss, New York, N. Y., assignor to the Barrett Co. Rubber product and composition.

1,334,067—To Williard A. Anglemyer, Indianapolis, Ind. Tire.

1,334,110—To Daniel Moriarty, Oakland, Cal. Vehicle tire.

1,334,111—To Daniel Moriarty, Oakland, Cal. Resilient wheel.

1,334,185—To William C. Stevens, Akron, Ohio, assignor to Firestone Tire & Rubber Co., Akron, Ohio. Machine for making tire casings.

1,334,204—To Harry S. Williams, San Antonio, Texas, assignor one-half to Otto Keller, San Antonio, Texas. Air cushion tire.

1,334,205—To Harry S. Williams, San Antonio, Texas, assignor one-half to Otto Keller, San Antonio, Texas. Cushion tire.

ISSUED MARCH 23, 1920.

1,334,448—To Wiley P. Gordon, Tarboro, N. C., assignor one-half to Thomas B. Jacooks, Tarboro, N. C. Tire.

1,334,629—To Melvin L. Munger, Lincoln, Neb. Tire vulcanizing mold.

1,334,874—To James B. Miller and John H. Bruninga, St. Louis, Mo., assignors to Isaac Feidenheimer, St. Louis, Mo. Tire pressure gage.

ISSUED MARCH 30, 1920.

1,334,970—To Frank Schneible, New York, N. Y. Tire.

1,335,101—To Frank Fenton, Akron, Ohio, assignor to the Miller Rubber Company, Akron, Ohio. Process for making pneumatic tires and air bags.

1,335,115—To Orla L. Huffman, Weatherford, Texas. Tire filler.

1,335,150—To Paul I. Anderson, Des Moines, Iowa. Process for making tires.

1,335,245—To Willis W. Krutsch, Coffeyville, Kan., assignor one-half to William M. Harrison, Muskogee, Okla. Cushion wheel.

1, 335,248—To Friedrich Lederer, Milwaukee, Wis., assignor to Necedah Mfg. Co. Rim spreader.

1,335,268—To Alfred L. Baker, Jerome, Mich. Tire and rim.

1,335,273—To Andrew M. Bruce, Ira, Mo. Rubber shoe.

1,335,353—To Jay Harley Smith, San Francisco, Cal. Air bag for vulcanizers.

1,335,411—To James H. Wagenhorst, Akron, Ohio. Tire shoe and rim therefor.

1,335,442—To Walter Kline, Mogadore, Ohio, assignor to the Interlocking Cord Tire & Belt Co., Akron, Ohio. Pneumatic tire.

1,335,452—To William T. C. Morgan, McKees Rocks, Pa. Tire.

1,335,469—To Ruby R. Vale, Milford, Del. Pneumatic vehicle tire.

1,335,496—To Mark Hamburger, Baltimore, Md. Link cushion tire.

1,335,505—To Paul O. Huntington, Brighton, Mass., assignor to H. M. Sawyer & Sons, Cambridge, Mass. Raincoat.

1,335,710—To Alexis Jakovleff, San Francisco, Cal., assignor to Jak Tire Corporation, San Francisco, Cal. Multiple tread pneumatic tire.

1,335,711—To Alexis Jakovleff, San Francisco, Cal., assignor to Jak Tire Corporation, San Francisco, Cal. Dual sectional pneumatic tire.

1,335,712—To Alexis Jakovleff, San Francisco, Cal., assignor to Jak Tire Corporation, San Francisco, Cal. Sectional pneumatic tire.

1,335,713—To Alexis Jakoleff, San Francisco, Cal., assignor to Jak Tire Corporation, San Francisco, Cal. Vehicle tire.

Recent Goodrich Promotions

V. I. Montenyohl and L. L. Smith, credit managers of the B. F. Goodrich Company, were elected assistant treasurers of the corporation at the annual meeting of the board of directors held in New York recently.

Mr. Montenyohl has been connected with the Goodrich Company for thirteen years, having started in 1907 as a stenographer in the treasurer's department. He had the advantage of working under W. A. Means, who is now vice-president of the company. Mr. Montenyohl began his actual credit work in 1910, and handled the more important duties of this department. In the spring of 1917 he was appointed credit manager.

Mr. Smith is just completing his twelfth year of service. He entered the employ of the company in April, 1908, as receiving clerk in the tire adjusting department. Later he was advanced to tire adjuster, and then to assistant manager of the Goodrich Kansas City branch. In 1914 he was made special salesman in the Kansas city territory. He was transferred to the Akron credit department in 1915. After two years in the credit department Mr. Smith was also appointed a credit manager.

Cotton Growing in California

Cotton growing in Arizona is no longer in the experimental stage, thousands of acres being under cultivation, producing great amounts for tire fabric. Irrigation has turned sandy wastes into fertile plantations that produce cotton of equal quality to that of the Sea Island or other varieties. The Goodyear Tire and Rubber Company was one of the pioneers in cotton growing in Arizona and so successful has been its efforts that the company has established connections in the Imperial Valley of southern California. Construction work will soon be begun on gins in Calexico, Calapatria and probably El Centro.